Appendix 1: Healthy Hearing Glossary of Terms

Term	Explanation/Description
AABR 1	The first hearing screen performed where a *Refer* or *Pass* result is obtained for both ears.
AABR 2	The second hearing screen performed following a *Refer* outcome in one or both ears on the first (AABR1) screen where a *Refer* or *Pass* result is obtained for both ears.
Audiological/Targeted Surveillance	Babies who receive a *Pass* result for both ears on their first (AABR1) or second (AABR2) hearing screen but who present with the risk factors for delayed onset or progressive hearing loss listed on the Healthy Hearing Screening & Referral form require referral to Audiology for comprehensive assessment before they reach 12 months corrected age.
Corrected age	Equals the chronological age in weeks minus time born before 40 weeks.
Healthy Hearing Screening	▪ Is undertaken using an Algo 3 or Algo 3i device using Automated Auditory Brainstem Response (AABR) technology. Brain wave responses are automatically measured and interpreted as a *Pass* or *Refer* response. ▪ Will only detect a hearing loss sufficient to interfere with speech & language development, not whether hearing thresholds are within normal limits. ▪ Is not diagnostic, just identifies individuals who require further assessment. Only diagnostic tests (audiological & medical) can confirm the presence of a hearing loss. ▪ Only indicates whether hearing is adequate for the development of normal speech and language skills at the time of screening.
Medically suitable	Babies who are at least 34 weeks gestational age & preferably < than 3 months corrected age & who have no significant craniofacial abnormalities; are in an open crib; off ventilators; & are not receiving central nervous system stimulants (eg caffeine), ototoxic medications or phototherapy for hyperbilirubinaemia. Babies can be screen up till 6 months corrected age in some situations
Nurse screener	▪ Midwife, Registered Nurse or Enrolled Nurse who has completed an approved education program and achieved competencies in performing universal newborn hearing screening using the Algo 3 and/or 3i. ▪ AINs are not eligible to be trained to perform hearing screens. ▪ In some circumstances, hearing screening may also be performed by Indigenous Health Workers who have undertaken an approved training program.
Pass result	▪ Only indicates that hearing is adequate at the time of screening for the development of normal speech and language. ▪ It does not indicate that the baby can hear at normal levels or guarantee that the baby's hearing will not change over time. ▪ A slight hearing loss could still be present and hearing can change over time so ongoing parental monitoring using the Hearing and Speech Checklist is essential. ▪ Requires a minimum of 1000 sweeps.
Refer result	▪ Only indicates that further assessment (second screen or diagnostic Audiology) is required. ▪ Does not indicate that a hearing loss is present, though it is important to acknowledge that this is one possibility. ▪ Is when there have not been 1000 matching responses to the template analysed within the AABR technology and the device has completed at least 15,000 sweeps.
Screen	▪ A procedure applied to a non-selected population to identify those who require diagnostic assessment. ▪ Advantage of screening is the identification of individuals who would not otherwise be suspected of having a problem. *Screening results are not diagnostic: they only indicate the possibility of a condition being present or absent.*
Sweep	Cycle where the Algo generates a click & collects baby's response.

List of Abbreviations

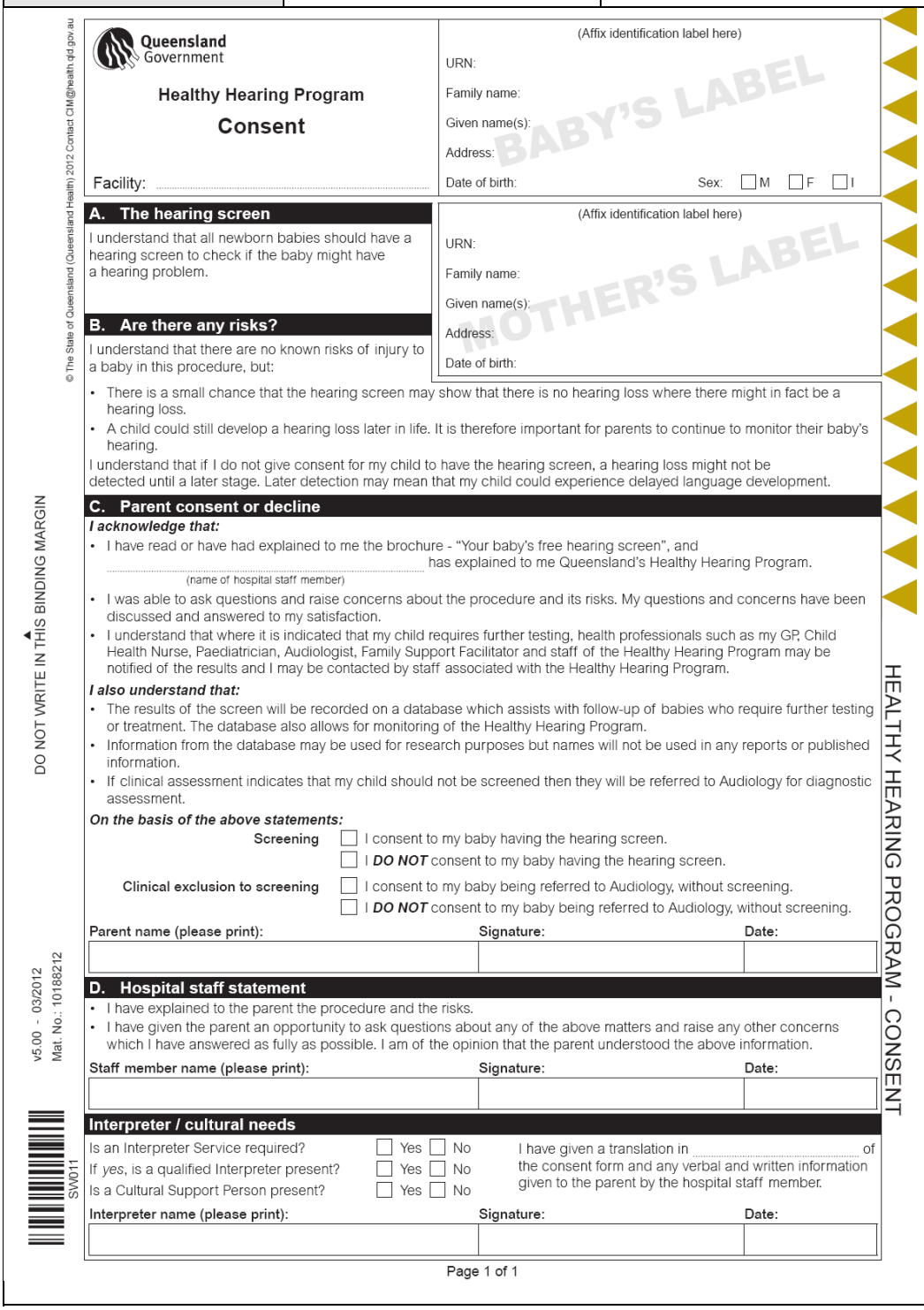
AABR: automated auditory brainstem response	HLRF: hearing loss risk factors
ABR: auditory brainstem response	PCHL: permanent childhood hearing loss
CP: Clinical Pathway	PHL: permanent hearing loss
FSF: Family Support Facilitator	PHR: Personal Health Record Book
HH: Healthy Hearing	QHLFSS: Queensland Hearing Loss Family Support Service
HHP: Healthy Hearing Program	
HL: hearing loss	S&R Form: Screening and Referral Form

Appendix 2: Healthy Hearing Forms

Below is a summary of the forms used by the Healthy Hearing Program. Followed by samples of these forms and guide to completing the Healthy Hearing Screening and Referral Form.

Translated versions of the Consent Form in various languages is available on the Healthy Hearing Website for printing at http://www.health.qld.gov.au/healthyhearing/pages/trnsltdcnsnt.asp

Title	Target Group	Purpose
Healthy Hearing Program Consent Form	Parent/s of all babies who give consent or decline the hearing screen	Medico-legal document for recording: o Parent/s understanding of the hearing screen & any risks associated with having/not having screen o possible use of the results including recording in the data base, research & notification to other health professionals o parent/s consent/decline of hearing screen



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Queensland Government

Healthy Hearing Program

Consent

Facility: .....

(Affix identification label here)

URN:

Family name:

Given name(s):

Address:

Date of birth: Sex: ☐ M ☐ F ☐ I

BABY'S LABEL

A. The hearing screen

I understand that all newborn babies should have a hearing screen to check if the baby might have a hearing problem.

(Affix identification label here)

URN:

Family name:

Given name(s):

Address:

Date of birth:

MOTHER'S LABEL

B. Are there any risks?

I understand that there are no known risks of injury to a baby in this procedure, but:

- There is a small chance that the hearing screen may show that there is no hearing loss where there might in fact be a hearing loss.
- A child could still develop a hearing loss later in life. It is therefore important for parents to continue to monitor their baby's hearing.

I understand that if I do not give consent for my child to have the hearing screen, a hearing loss might not be detected until a later stage. Later detection may mean that my child could experience delayed language development.

C. Parent consent or decline

I acknowledge that:

- I have read or have had explained to me the brochure - "Your baby's free hearing screen", and ..... has explained to me Queensland's Healthy Hearing Program.
  (name of hospital staff member)
- I was able to ask questions and raise concerns about the procedure and its risks. My questions and concerns have been discussed and answered to my satisfaction.
- I understand that where it is indicated that my child requires further testing, health professionals such as my GP, Child Health Nurse, Paediatrician, Audiologist, Family Support Facilitator and staff of the Healthy Hearing Program may be notified of the results and I may be contacted by staff associated with the Healthy Hearing Program.

I also understand that:

- The results of the screen will be recorded on a database which assists with follow-up of babies who require further testing or treatment. The database also allows for monitoring of the Healthy Hearing Program.
- Information from the database may be used for research purposes but names will not be used in any reports or published information.
- If clinical assessment indicates that my child should not be screened then they will be referred to Audiology for diagnostic assessment.

On the basis of the above statements:

Screening
☐ I consent to my baby having the hearing screen.
☐ I ***DO NOT*** consent to my baby having the hearing screen.

Clinical exclusion to screening
☐ I consent to my baby being referred to Audiology, without screening.
☐ I ***DO NOT*** consent to my baby being referred to Audiology, without screening.

Parent name (please print):	Signature:	Date:

D. Hospital staff statement

- I have explained to the parent the procedure and the risks.
- I have given the parent an opportunity to ask questions about any of the above matters and raise any other concerns which I have answered as fully as possible. I am of the opinion that the parent understood the above information.

Staff member name (please print):	Signature:	Date:

Interpreter / cultural needs

Is an Interpreter Service required? ☐ Yes ☐ No
If *yes*, is a qualified Interpreter present? ☐ Yes ☐ No
Is a Cultural Support Person present? ☐ Yes ☐ No

I have given a translation in ..... of the consent form and any verbal and written information given to the parent by the hospital staff member.

Interpreter name (please print):	Signature:	Date:

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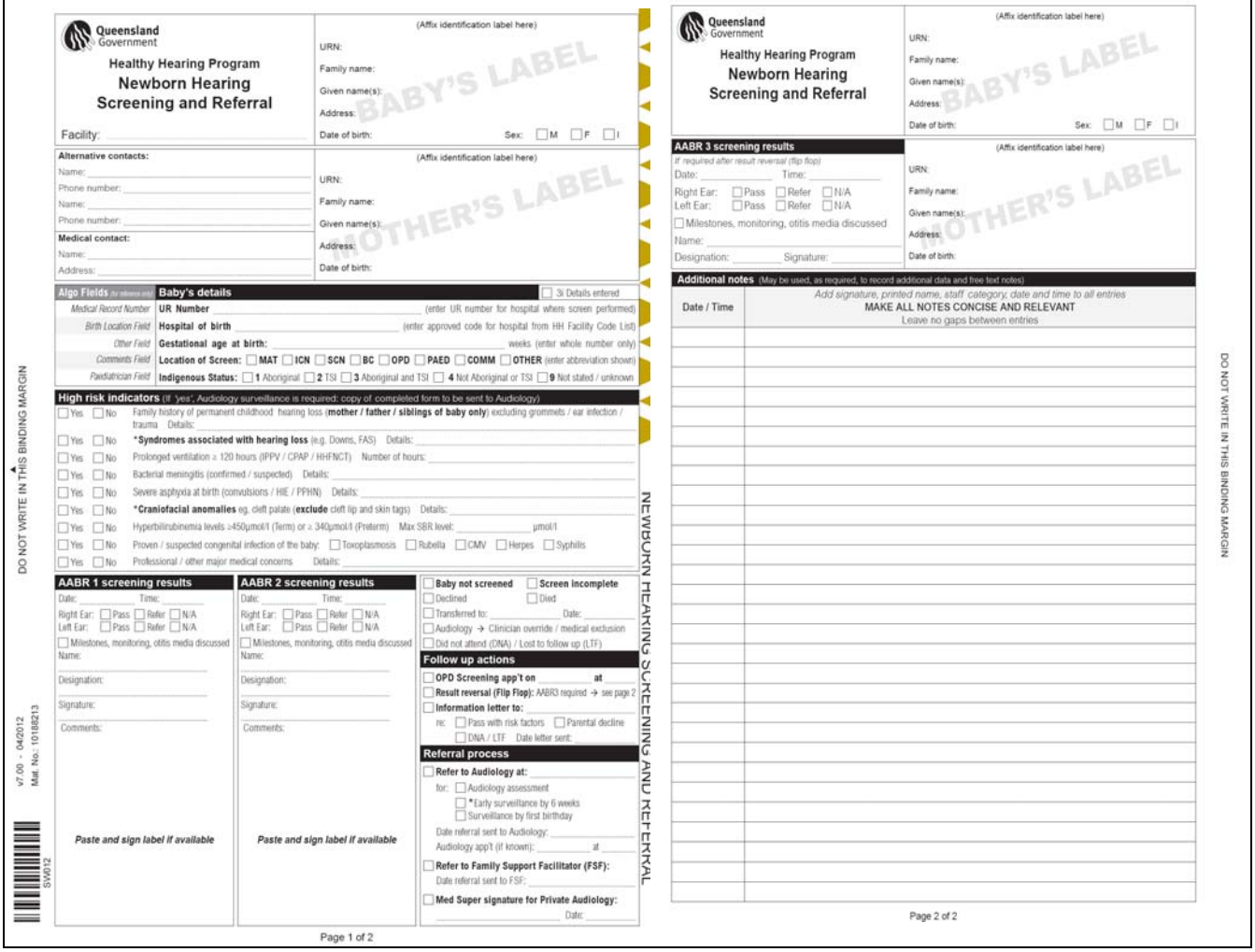
DO NOT WRITE IN THIS BINDING MARGIN

v5.00 - 03/2012
Mat. No.: 10188212
SW011

HEALTHY HEARING PROGRAM - CONSENT

Title	Target Group	Purpose
Healthy Hearing Program Newborn Hearing Screening & Referral Form	To be completed for all babies regardless of whether they commence/complete the hearing screen process	Medico-legal document used to: o record demographic & medical data including presence of high risk indicators for hearing loss o record results & follow-up actions of screen for filing in babies' clinical charts o refer baby to Audiology & Family Support Service o provide a template for data entry into Algo o any additional information re screening history



Queensland Government

Healthy Hearing Program

Newborn Hearing Screening and Referral

Facility:

(Affix identification label here)

URN:

Family name:

Given name(s):

Address:

Date of birth:

Sex: M F I

BABY'S LABEL

Alternative contacts:

Name:

Phone number:

Name:

Phone number:

Medical contact:

Name:

Address:

MOTHER'S LABEL

Algo Fields

Baby's details

3i Details entered

Medical Record Number — UR Number (enter UR number for hospital where screen performed)

Birth Location Field — Hospital of birth (enter approved code for hospital from HH Facility Code List)

Other Field — Gestational age at birth: weeks (enter whole number only)

Comments Field — Location of Screen: MAT ICN SCN BC OPD PAED COMM OTHER (enter abbreviation shown)

Paediatrician Field — Indigenous Status: 1 Aboriginal 2 TSI 3 Aboriginal and TSI 4 Not Aboriginal or TSI 9 Not stated / unknown

High risk indicators (If 'yes', Audiology surveillance is required: copy of completed form to be sent to Audiology)

Yes No Family history of permanent childhood hearing loss (**mother / father / siblings of baby only**) excluding grommets / ear infection / trauma Details:

Yes No ***Syndromes associated with hearing loss** (e.g. Downs, FAS) Details:

Yes No Prolonged ventilation ≥ 120 hours (IPPV / CPAP / HHFNCT) Number of hours:

Yes No Bacterial meningitis (confirmed / suspected) Details:

Yes No Severe asphyxia at birth (convulsions / HIE / PPHN) Details:

Yes No ***Craniofacial anomalies** eg. cleft palate (**exclude** cleft lip and skin tags) Details:

Yes No Hyperbilirubinemia levels ≥450µmol/l (Term) or ≥ 340µmol/l (Preterm) Max SBR level: µmol/l

Yes No Proven / suspected congenital infection of the baby: Toxoplasmosis Rubella CMV Herpes Syphilis

Yes No Professional / other major medical concerns Details:

AABR 1 screening results

Date: Time:

Right Ear: Pass Refer N/A

Left Ear: Pass Refer N/A

Milestones, monitoring, otitis media discussed

Name:

Designation:

Signature:

Comments:

Paste and sign label if available

AABR 2 screening results

Date: Time:

Right Ear: Pass Refer N/A

Left Ear: Pass Refer N/A

Milestones, monitoring, otitis media discussed

Name:

Designation:

Signature:

Comments:

Paste and sign label if available

Baby not screened Screen incomplete

Declined Died

Transferred to: Date:

Audiology → Clinician override / medical exclusion

Did not attend (DNA) / Lost to follow up (LTF)

Follow up actions

OPD Screening app't on at

Result reversal (Flip Flop): AABR3 required → see page 2

Information letter to:

re: Pass with risk factors Parental decline

DNA / LTF Date letter sent:

Referral process

Refer to Audiology at:

for: Audiology assessment

*Early surveillance by 6 weeks

Surveillance by first birthday

Date referral sent to Audiology:

Audiology app't (if known): at

Refer to Family Support Facilitator (FSF):

Date referral sent to FSF:

Med Super signature for Private Audiology:

Date:

DO NOT WRITE IN THIS BINDING MARGIN

NEWBORN HEARING SCREENING AND REFERRAL

v7.00 - 04/2012 Mat. No.: 10188213 SW012

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Queensland Government

Healthy Hearing Program

Newborn Hearing Screening and Referral

(Affix identification label here)

URN:

Family name:

Given name(s):

Address:

Date of birth: Sex: M F I

BABY'S LABEL

AABR 3 screening results

If required after result reversal (flip flop)

Date: Time:

Right Ear: Pass Refer N/A

Left Ear: Pass Refer N/A

Milestones, monitoring, otitis media discussed

Name:

Designation: Signature:

(Affix identification label here)

URN:

Family name:

Given name(s):

Address:

Date of birth:

MOTHER'S LABEL

Additional notes (May be used, as required, to record additional data and free text notes)

Add signature, printed name, staff category, date and time to all entries

MAKE ALL NOTES CONCISE AND RELEVANT

Leave no gaps between entries

Date / Time	

DO NOT WRITE IN THIS BINDING MARGIN

Page 2 of 2

Guide to Completing the Healthy Hearing Screening and Referral Form (S&R Form)

The Healthy Hearing Screening & Referral Form (S&R Form) is completed for all live births regardless of whether or not the baby completes the hearing screen. This form services several purposes including:

- Collects demographic information
- Records relevant medical history: for example, the presence of specified risk factors for delayed onset or progressive hearing loss
- Template for entering data into the relevant fields on the screen of the Algo 3 or 3i
- Referral form to Audiology for immediate diagnostic assessment
- Referral form to Audiology for follow-up assessment if specified risk factors identified
- Referral form to the Queensland Hearing Loss Family Support Service (QHLFSS) following a Refer result on the second screen (AABR2)
- Documentation record of the hearing screen results and follow-up actions.

The Baby's Details and High Risk Indicators are completed by referring to the medical charts (maternal and neonatal) rather than by asking the mother or family. The chart provides a more reliable source of information, protects patient confidentiality. The exception is when collecting information on *Family history of permanent childhood hearing loss*. This will usually require discussion with the parent/s or the family as this aspect of medical history is often not well documented in the medical record.

Where a baby dies or is transferred for medical reasons before the hearing screen process is commenced, high risk indicators can be left blank.

If a baby's family declines the screen or fails to attend scheduled screening appointment/s then all sections of the form except screening results are to be completed and filed in the baby's chart.

The *Additional Notes* section on the reverse side of the form can be used to record any additional information regarding the hearing screen history.

Baby's & Mother's Details

Affix the Baby's Patient Identification Label and the Mother's Identification Label in the designated boxes on the form. Alternatively, the details can be hand written on the form if no stickers are available.

Facility/Service

- Enter the name of *your hospital*. This information is important if a referral is made to Audiology or QHLFSS – correspondence to the referring hospital can occur on outcomes of appointments and follow –up provided.

Alternative Contact Details

- Complete the 2 *Alternative Contact Details sections* to assist with arranging initial or follow-up appointments if the family can not be contacted. If possible, this should be someone other than the mother's partner.

Medical Contact

- Enter name and address of the *Family GP, Paediatrician or Medical Centre*. Information can be obtained from the chart in the first instance but should be confirmed with the parent/s at the time of the screen.
- A letter will be sent to the family's doctor if the parent/s cannot be contacted to arrange an appointment for a hearing screening or if they miss more than 2 scheduled appointments without notification.

Algo Fields & Baby's Details

The Healthy Hearing Program is required to collect some mandatory data fields and these are entered into the data fields on the Algo 3 and 3i screening devices.

UR Number (Medical Record Number field)

- Record the UR Number of where the hearing screening is <u>being performed</u>.
- If the AABR2 is attended at a different facility to AABR1, record the UR number of where AABR2 is being performed. The Healthy Hearing database will link the two different UR numbers when the data is downloaded.
- The baby's current UR Number will also be listed on the baby's ID label on the form.

Hospital of Birth (Birth Location field)

- Refer to the approved list of hospital codes and record the code for the facility where the baby was born.
- BBA and Homebirths, Overseas and interstate births should be entered as *OTHER..*

Gestational Age at Birth (Other field)

- Record only the whole number of weeks completed on the form. For example: if gestational age is 38 weeks and 6 days, 38 is to be recorded.

Location of Screen (Comments field)

Tick one of the approved codes. The location reflects the current care level of the baby rather than where the screen is being performed. Refer to table below for explanation of codes. Enter the selected code in the *Comment* field on the Algo 3.

Abbreviations refer to the level of care at the time the hearing screen is being performed:

CODE	INTERPRETATION
MAT	General Maternity Ward
ICN	Intensive Care Nursery, Intensive Care Unit, Neonatal Intensive Care Unit
SCN	Special Care Nursery
BC	Birth Centre, birth suite, birthing department, birthing unit, labour wards
	BC encompasses all locations where a baby may birth in a hospital.
OPD	Outpatient – at an Outpatient Clinic, or completed as an outpatient following discharge
PAED	Paediatric Ward or Children's Hospital as a transfer or readmission
COMM	Community –residence, community health, or other settings outside of the hospital
OTHER	Only entered if none of the other codes are applicable

Indigenous Status Number Code (Paediatrician field)

- Tick the appropriate code number box. Enter the number in the Algo 3 in the *Paediatrician* field.

The family should be asked "Will this baby identify as being Aboriginal or Torres Strait Islander?"

3i Details Entered

- Tick this box when the additional information has been entered. The additional data is required to be entered manually.

High Risk Indicators

A baby who is identified with a high risk indicator during the screening process is at risk of developing a late onset or progressive hearing loss is referred to Audiology for comprehensive diagnostic assessment before 12 months corrected age.

- If you tick *Yes* to any one of the risk factors listed, the baby must be referred to Audiology on completion of screening for a Target Surveillance assessment before 12 months of age or within 6 weeks on completion of screening for Early Surveillance risk factors.
- Early Surveillance risk factors are indicated by the asterisk*.
- The Healthy Hearing Screening and Referral Form is used to initiate the referral to Audiology by fax, scanning or copy in the mail.
- A medical practitioner may refer a baby directly for diagnostic audiology. The Clinician override/medical exclusion box is ticked in the Baby not screened section and the referral sent to Audiology. A medical practitioner may refer a baby for Target Surveillance outside of the Healthy Hearing Risk Indicators by utilising the Professional Concern Option. All relevant details should be documented on the Screening and Referral form and be processed by the Healthy Hearing Team.
- Should a clinician have concerns regarding a baby's hearing thresholds prior to a scheduled appointment a referral will need to be initiated outside of the Healthy Hearing Newborn Screening Program by the treating clinician.
- Record any relevant details. Use the Notes page if more space is required.

Family history of permanent childhood hearing loss (mother/father/siblings of baby only) excluding grommets/ear infection / trauma

- This does not include hearing loss due to injury, childhood ear infections and the insertion of grommets in the eardrum (tympanic membrane).
- Clarification can be sought from Paediatrician or Audiologist when uncertain if a reported hearing loss meets the required definition.
- Questions that you can ask to confirm whether the hearing loss was a permanent childhood hearing loss include:
    - Was the hearing loss associated with ear infections?
    - Was the hearing loss associated with an injury or accident?
    - Did the hearing loss occur before the family member reached school age?
    - Was the hearing loss permanent or did hearing improve over time?
    - Does/did the family member wear a hearing aid/s?
    - Does the family member have any trouble with their speech?

****Syndromes associated with hearing loss (Early Surveillance)***

- There are more than 400 syndromes associated with hearing loss. Some of the more common ones include the following: *Refer to Appendix 6 Syndromes Associated with a Hearing Loss in the Healthy Hearing Program Protocols and Guidelines* for a more detailed list.

▫ Brachio-otorenal	▫ Foetal Alcohol Syndrome	▫ Stickler
▫ Charge association	▫ Goldenhar	▫ Treacher-Collins
▫ Chromosomal abnormality: eg	▫ Klipper-Feil	▫ Usher
▪ Down Syndrome	▫ Noonan's	▫ Waardenburg
▪ Trisomy 13/18	▫ Nager	
▪ Turner's Syndrome	▫ Osteogenesis Imperfecta	

- Tick *Yes* if the baby has been diagnosed with any one of these syndromes or if they are suspected of having one of these syndromes.
- If a baby has been diagnosed with a syndrome other than those listed above and you are unsure if it is associated with progressive or delayed onset hearing loss, check with the baby's doctor/paediatrician.

Prolonged ventilation for more than 120 hours with IPPV, CPAP, HHFNCT

Tick *Yes* if the baby was ventilated for 120 hours or more with Intermittent Positive Pressure Ventilation (IPPV), Continuous Positive Airway Pressure (CPAP) or Humidified High Flow Nasal Cannula Therapy (HHFNCT). Record the number of hours.

Bacterial Meningitis (confirmed or suspected)

- Tick *Yes* if the baby has a confirmed history of bacterial meningitis or is suspected of having had bacterial meningitis. Record any relevant details.

Severe asphyxia at birth

- Tick *Yes* if the baby has a history of severe asphyxia at birth resulting in a sequelae characterised by convulsions, Hypoxic Ischaemic Encephalopathy (HIE) or Persistent Pulmonary Hypertension of the Newborn (PPHN), Intraventricular Haemorrhage (IVH), Periventricular Leukomalacia (PVL). Record any relevant details.

Craniofacial Abnormalities (Early Surveillance)

- Tick *Yes* if the baby presents with any craniofacial abnormalities of the head, face or neck: eg - cleft palate, Record any relevant details.
- If the only craniofacial abnormality is a cleft lip or skin tags then tick the *No* box.

Hyperbilirubinemia

- Tick *Yes* only if levels reached or exceeded 450µmol/l for a term baby or 340 µmol/l for a preterm baby.
- Record the maximum SBR level.

Proven congenital infection

- Tick *Yes* if the baby has a history of infection with toxoplasmosis, rubella, Cytomegaly Virus or herpes confirmed by results of urine and blood analysis of the baby, or if the baby is suspected of having syphilis.
- If the mother or baby was suspected of having one of these infections but the baby has since been confirmed as negative, then tick *No*. Syphilis may take a series of tests before the result is confirmed.
- If results are not yet available, enter U (unknown) in the Algo and hold the form until the results are available. The local Healthy Hearing coordinator will amend the form & database when the results become available.

Professional concern/other major medical concerns

- A clinician may request Target surveillance for reasons that differ from the protocol.
- In this situation, tick *Yes* for *Professional Concern* and record the relevant details.
- Note details on the form.
- Enter this information into the Healthy Hearing database as there is no field for this item on the Algo.

AABR1 Screening Results

On completion of the AABR1 document the; date, time, screen outcome and tick the milestones, monitoring and or otitis media discussed box and sign in the AABR 1 section. A label may be attached if still used in the facility.**AABR2 Screening Results**

On completion of AABR2 document the; date, time, screen outcome and tick the milestones, monitoring and or otitis media discussed box and sign in the AABR 2 section. A label may be attached if used in the facility.

- If the baby receives a *Refer* result on one or both ears, the screener must send a copy of the form via fax to the relevant Audiology service immediately to initiate diagnostic assessment.
- The S&R form is also to be faxed to the Queensland Hearing Loss Family Support Service.

Baby not screened or screen incomplete

- Tick the appropriate box if a baby does not have a AABR1 or screening process is incomplete.
- If a parent declines a hearing screen it is essential to discuss *milestones, parental monitoring and Otitis Media* where the parent/s has *declined* the offer of a hearing screen.
- If the baby has been transferred, tick the box, record the name of the receiving facility and enter the date that the baby was physically transferred to another hospital.

Follow up Actions

- Tick the appropriate boxes to indicate specific action taken.
- If the baby is to return for an outpatient appointment, enter the date and time.
- *Result reversal* is the unusual scenario where one ear has a *Pass* and the other ear a *Refer* or *N/A* result in the first screen (AABR1) and then the opposite ears *Pass* and *Refer* or *N/A* result in the second screen (AABR2). A third screen will be required in this situation.
    - Tick the box to show AABR3 is required.
    - Record the results of the AABR3 in the designated AABR3 section on page 2.
- If an *information letter* is sent to the baby's GP or other clinician, indicate to whom the letter was sent. Tick the appropriate reason for the letter and record the date that the letter was sent. A copy should be placed in the clinical notes.

Referral Process

- If the baby if being referred to Audiology, record the name/location of the clinic.
- Tick if the reason is for immediate *diagnostic assessment* or *surveillance*.
- Record the *date* that the referral was sent to Audiology.

- Record the date and time of the *Audiology appointment*, if known.
- Record the date the referral was sent via fax to the Family Support Service.
- If your facility requires Medical Superintendents signature for referral to Private Audiology, tick the *Med Super signature for Private Audiology* box and arrange for the form to be signed and dated. A copy of the S&R form should be sent to Audiology immediately so the appointment process is not delayed.

Page 2 (reverse side of the form)

Baby's & Mother's Details

- Affix patient identification labels if using page 2. This is important in case the form is copied or faxed to another provider at any time.

AABR3 Screening Results

- If the baby does require AABR3 following a result reversal (flip flop) document the screen result. A label may be attached if still used in the facility in the additional note section.
- If a baby obtains a *Pass* result on the AABR3, then *milestones, parental monitoring and Otitis Media* should be discussed/reinforced with the parent/s. Tick the box when this task has been completed.
- If the baby receives a *Refer* result on one or both ears, the screener must send a copy of the form via fax, or mail to the relevant Audiology service immediately to initiate diagnostic assessment.
- The screening and referral form is also to be faxed to the Queensland Hearing Loss Family Support Service.

Additional Notes

For some babies additional notes may need to be made regarding the screening process. Use the *Additional Notes* section for this purpose.

- Failure to attend appointments.
- Attempts to contact parent/s to arrange appointments.
- Advice sought by medical practitioners, audiologists or others regarding high risk indicators etc.
- AABR3 screening result can be completed on this page.
- Any extra *Notes* pages should be filed with the original Healthy Hearing Screening and Referral Form in the baby's medical record.

Appendix 3: Summary of Potential Result Combinations, Follow-up Actions & Documentation

Possible AABR 1 outcomes

Result	Interpretation	Screen Status/Follow up actions	Documentation Requirements
Pass* result in both ears: No *High Risk Indicators	Bilateral *Pass*	▪ Screening complete ▪ No further formal assessment required ▪ Parents encouraged to monitor baby's milestones against *Speech & hearing checklist* on HH brochure	▪ Complete the AABR1 *Screening results section* of the *S&R* form o Tick the *Pass* box for the Right and Left ears o Enter date, screener details, signature and comments if necessary ▪ Complete the *Follow up Actions* section of the Healthy Hearing S&R form o Tick *Milestones, monitoring &/or otitis media* discussed ▪ Record the result in baby's *Personal Health Record Book* ▪ File the *Consent form* in the baby's clinical chart ▪ File the *Screening and Referral form* in the baby's clinical chart ▪ Complete *Clinical Pathways (CP)* documentation (if used) or record notation in mother's &/or baby's charts
***Pass* result in both ears: *High Risk Indicator/s* present**	Early/Targeted Surveillance	▪ Screening complete ▪ Refer to Audiology for follow up assessment within 6 weeks or before baby's 1st birthday ▪ Do NOT refer surveillance babies to the FSF ▪ Parents are to be encouraged to monitor baby's milestones against *Speech & hearing checklist* on HH brochure & to contact Audiology for an earlier appointment if they have any concerns ▪ Emphasis the importance of attending for diagnostic assessment but remind them that the screen is not diagnostic ▪ Encourage parent/s to contact Audiology or FSF if they have any questions prior to appointment ▪ Provide parent with 'Your baby's follow-up hearing test'	▪ Complete the AABR1 *Screening results section* of the *S&R* form o Tick *Pass*/*Refer* boxes as appropriate for the Right and Left ears o Enter date, screener details, signature and comments if necessary ▪ Complete the *Follow up Actions* section of the Healthy Hearing S&R form o Tick *Milestones, monitoring &/or otitis media* discussed o Record location & date of referral to Audiology o Tick *Surveillance* box o Record appointment details if known ▪ Record the result in the baby's *PHR Book* & list the risk factors ▪ Fax/forward a copy of completed *S&R form,* including *Notes* page to Audiology ▪ File the *Screening and Referral form* in the baby's clinical chart ▪ Complete CP documentation (if used)/record notation in mother's &/or baby's charts
***Refer* result both ears**	Bilateral *Refer*	▪ AABR2 required o Rescreen as soon as possible but ideally leave a minimum of 12 to 24 hours between screens o If a baby is attending as an outpatient the AABR 2 should be performed within 1-2 weeks o Screening should be completed by 3 mths corrected age, technically babies can be screened up to 6 mths	▪ Complete the AABR1 *Screening results section* of the *S&R* form o Tick *Pass*/*Refer* boxes as appropriate for the Right and Left ears o Enter date, screener details, signature and comments if necessary ▪ Record the result in baby's *Personal Health Record Book* ▪ File the *Consent form* in the baby's clinical chart. ▪ File the *S&R form* in accordance with local protocol pending AABR2 result ▪ Complete *CP* documentation (if used)/record notation in mother's &/or baby's charts
***Refer* result in one ear: *Pass* result in other ear**	Unilateral *Refer*		
No result in either ear	Screen incomplete (NA)	▪ Repeat AABR1 as soon as practical ▪ Re-screen <u>both</u> ears ▪ If a baby is attending as an outpatient the repeat AABR1preferably should be done within 1-2 weeks ▪ Screening should be completed by 3 mths corrected age, although babies can be screened up to 6 mths	▪ As a complete screen has not been obtained, the AABR 1 Screening Results box should be left blank & outcome of screen recorded on Notes page of S&R form. o The *Screen Incomplete* box should only be ticked if the baby has been discharged from HH ▪ File the *Consent form* in the baby's clinical chart ▪ File the *S&R form* in accordance with local protocol pending a repeat AABR1 result ▪ Complete *CP* documentation (if used)/record notation in mother's &/or baby's charts
No result in one ear: *Pass* result in other ear			
No result in one ear : *Refer* in other ear			

Possible AABR 2 outcomes

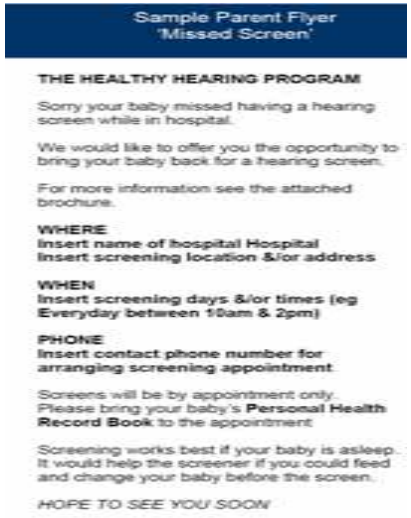
Result	Interpretation	Screen Status/Follow up actions	Documentation Requirements
Pass* result both ears** **No *High Risk Indicators	Bilateral *Pass*	▪ Screening complete ▪ No further formal assessment required ▪ Parents encouraged to monitor baby's milestones against *Speech & hearing checklist* on Healthy Hearing brochure ▪ Discuss risk of Otitis Media in the first year due to the higher risk of developing this condition following a *Refer* result	▪ Complete the AABR2 *Screening results section* of the *S& R* form o Tick the *Pass* box for the Right and Left ears o Enter date, screener details, signature and comments if necessary ▪ Complete the *Follow up Actions* section of the S&R form o Tick *Milestones, monitoring &/or otitis media* discussed ▪ Record the result in the baby's *Personal Health Record Book* ▪ File the *Screening and Referral form* in the baby's clinical chart ▪ Complete CP documentation (if used)/record notation in mother's &/or baby's charts
***Pass* result in both ears:** ***High Risk Indicator/s* present**	Early/Targeted Surveillance	▪ Screening complete ▪ Refer to Audiology for follow up assessment within 6 weeks or before baby's 1st birthday ▪ Do NOT refer surveillance babies to the FSF ▪ Parents are to be encouraged to monitor baby's milestones against *Speech & hearing checklist* on Healthy Hearing brochure & to contact Audiology for an earlier appointment if they have any concerns ▪ Emphasis importance of attending diagnostic assessment. remind them that screen is not diagnostic ▪ Encourage parent/s to contact Audiology/ FSF if they have questions prior to appointment ▪ Insert reminder slip into baby's PHR Book	▪ Complete the AABR1 *Screening results section* of the *S&R* form o Tick *Pass*/*Refer* boxes as appropriate for the Right and Left ears o Enter date, screener details, signature and comments if necessary ▪ Complete the *Follow up Actions* section of the S&R form o Tick *Milestones, monitoring &/or otitis media* discussed o Record location & date of referral to Audiology o Tick *Surveillance* box o Record appointment details if known ▪ Record result in the baby's *PHR Book*& list the risk factors if not already recorded ▪ Fax/forward a copy of completed *S&R form,* including *Notes* page to the Audiology ▪ Fax a copy of completed *S&R form,* including *Notes* page to the FSF ▪ File the *Screening and Referral form* in the baby's clinical chart ▪ Complete CP documentation (if used)/record notation in mother's &/or baby's charts
***Refer* in both ears**	Bilateral *Refer*	▪ Immediate diagnostic Audiology assessment required by an approved provider ▪ Provide family with a copy of the brochure Your Baby's Audiology Hearing Test o Note Audiology contact details in space provided on brochure ▪ Remind parents of the possible reasons for the *Refer* result, as listed on the brochure ▪ Emphasis the importance of attending for diagnostic assessment ▪ Encourage parent/s to contact Audiology or Family Support Service if they have any questions prior to appointment	▪ Complete the AABR2 *Screening results section* of the S&R form o Tick *Pass/Refer* boxes as appropriate for the Right and Left ears o Enter date, screener details, signature and comments if necessary ▪ Complete the *Follow up Actions* section of the S&R form o Tick *Milestones, monitoring &/or otitis media* discussed o Record location & date of referral to Audiology o Tick *Audiology Assessment* box o Record appointment details if known o Record date of referral to Family Support Service ▪ Record the result in the baby's *Personal Health Record Book* ▪ Fax/forward a copy of completed *S&R form,* including *Notes* page to Audiology ▪ Fax a copy of the completed *S&R form,* including the *Notes* page to the FSF ▪ File the *Screening and Referral form* in the baby's clinical chart ▪ Complete CP documentation (if used)/record notation in mother's &/or baby's charts
Refer result in same ear as AABR1 and a *Pass* result in the other ear	Unilateral *Refer*		
No result in either ear	Screen incomplete (NA)	▪ Repeat AABR2 required	▪ As a complete screen has not been obtained, AABR2 Screening Results box should be left blank & outcome of screen recorded on Notes page of S&R form o *Screen Incomplete* box should only be ticked if baby's discharged from HH ▪ File *S&R form* in accordance with local protocol pending a repeat AABR2 result ▪ Complete CP documentation (if used)/record notation in mother's &/or baby's charts
No result in one ear and *Pass* result in the other ear			
No result in one ear and *Refer* in the other			

Possible AABR 2 outcomes (continued)

Result	Interpretation	Screen Status/Follow up actions	Documentation Requirements
Result reversal - *Refer* result is obtained in an ear that gave a *Pass* result in a previous screen	FLIP/FLOP	▪ Perform a third screen ▪ Reassure parents that the alternating results may reflect fluctuating status within the ear (eg fluid or debris) & not an equipment fault ▪ Preferably leave 12 – 24 hours before re-screening ▪ Screening should be completed by 3 months corrected age although technically babies can be screened up to 6 months.	▪ Complete the AABR2 *Screening results section* of the *S&RI* form o Tick *Pass*/*Refer*/*Not tested* boxes as appropriate for each ear o Enter date, screener details, signature and comments if necessary ▪ Record the result in the baby's *Personal Health Record Book* ▪ File the *S&R form* in accordance with local protocol pending repeat AABR2 result ▪ Complete Clinical Pathways documentation (if used) or enter notation in mother's &/or baby's charts

Standard Letters and Flyers Used by the Healthy Hearing Program

Summary and samples, of standard letters and flyers used by the Healthy Hearing program.

Title	**Parent flyer re missed hearing screen** Attach to 'Your baby's free hearing screen' brochure	
Target Group	Parent/s of baby discharged prior to hearing screen being performed or appointment made (Phone contact usually attempted prior to sending this flyer)	
Purpose	Invitation to contact the Healthy Hearing Program to arrange an appointment for a hearing screen	

Sample Parent Flyer
'Missed Screen'

THE HEALTHY HEARING PROGRAM

Sorry your baby missed having a hearing screen while in hospital.

We would like to offer you the opportunity to bring your baby back for a hearing screen.

For more information see the attached brochure.

WHERE
Insert name of hospital Hospital
Insert screening location &/or address

WHEN
Insert screening days &/or times (eg Everyday between 10am & 2pm)

PHONE
Insert contact phone number for arranging screening appointment

Screens will be by appointment only. Please bring your baby's **Personal Health Record Book** to the appointment

Screening works best if your baby is asleep. It would help the screener if you could feed and change your baby before the screen.

HOPE TO SEE YOU SOON

Possible AABR 2 outcomes (continued)

Result	Interpretation	Screen Status/Follow up actions	Documentation Requirements
Result reversal - *Refer* result is obtained in an ear that gave a *Pass* result in a previous screen	FLIP/FLOP	▪ Perform a third screen ▪ Reassure parents that the alternating results may reflect fluctuating status within the ear (eg fluid or debris) & not an equipment fault ▪ Preferably leave 12 – 24 hours before re-screening ▪ Screening should be completed by 3 months corrected age although technically babies can be screened up to 6 months.	▪ Complete the AABR2 *Screening results section* of the *S&RI* form o Tick *Pass*/*Refer*/*Not tested* boxes as appropriate for each ear o Enter date, screener details, signature and comments if necessary ▪ Record the result in the baby's *Personal Health Record Book* ▪ File the *S&R form* in accordance with local protocol pending repeat AABR2 result ▪ Complete Clinical Pathways documentation (if used) or enter notation in mother's &/or baby's charts

Title	**Parent letter re missed appointment** (Including *Hearing & speech checklist*)	
Target Group	▪ Parent/s who have failed to attend for their baby's screening appointment (Phone contact usually attempted at least twice prior to sending this letter)	
Purpose	▪ Invitation to contact the Healthy Hearing Program to arrange another appointment for hearing screen ▪ Advice that baby will be taken off appointment list if parent/s do not make contact ▪ Invitation for parent/s to make contact at a later date ▪ Advice re the need to monitor baby's hearing against the *Hearing & speech checklist* if the hearing screen is not conducted	

Sample Parent Letter
'Missed Appointment'

Name

Address

CITY : STATE POSTCODE

Dear Insert Name

I understand that you missed your appointment for your baby's free hearing screen.

Please contact the Healthy Hearing Program at Insert Hospital Name Hospital on 07 Insert phone number to make another appointment.

If you are unable to attend your new appointment, it is important that you contact the Healthy Hearing Program to let them know. If you miss 2 appointments without contacting them, your baby's name will be taken off the appointment list. No further attempts will be made to contact you to arrange another appointment. A letter will be sent to your baby's doctor to let them know that your baby has not had the hearing screen.

If you do not want your baby to have the hearing screen just now but change your mind latter, you can contact the Healthy Hearing Program on the above number to arrange a new appointment.

If your baby does not have a hearing screen it will be very important for you and your family to monitor your baby's hearing. If you have any concerns about your baby's hearing you should contact your family doctor.

Yours sincerely

Insert Name
Insert Position Title

ealthy Hearing Information

is information sheet gives important facts about hearing screening. It explains how the screen is
ne & why it is important for your baby.

w many babies have a hearing loss?

proximately 2 out of every 1000 babies born each year will have a hearing loss which needs specialist help. About half of
babies found to have a hearing loss will not have had a serious illness or any family history of deafness.

w screen a baby's hearing?

ese first few weeks & months of a baby's life are very important for their development of speech and language. We now
e the technology to detect a hearing loss in the first few days of a baby's life. It is often difficult to tell that a baby has a
aring loss from just watching their behaviour. A baby may be responding to movement, vibrations or vibrations instead of
und.

e importance of early identification of hearing loss

e sooner a baby's hearing loss is identified, the sooner help can be provided. Recent research shows that babies who
eive help in the first few months of life have a much better chance of learning to talk and understand what people are
saying than children who are not diagnosed until they are older.

How is the screening carried out?

The nurse will gently place several small sticky pads on the baby's head, neck & shoulder while the baby is sleeping
naturally or in a quiet & settled state. A soft clicking noise is played through earphones into baby's ear. The sticky pads are
sensors which pick up the baby's responses to sound. This response is measured by the computer. The hearing screen is
quiet & painless. Parents/guardians can stay with the baby throughout the screen & the screener will tell you the results at
the end of the screen.

If your baby's hearing is not screened

Continue to watch your baby as they grow. You can compare your baby's reactions to those listed below on the Hearing &
Speech Checklist.

Hearing & Speech Checklist

Birth to 2 months

- ☐ Settles to familiar sounds or voices
- ☐ Is startled by or jumps when there is a sudden noise

3 to 6 months

- ☐ Turns head or eyes towards interesting sounds
- ☐ Appears to listen
- ☐ Wakes easily to sound
- ☐ Starts to make speech-like sounds

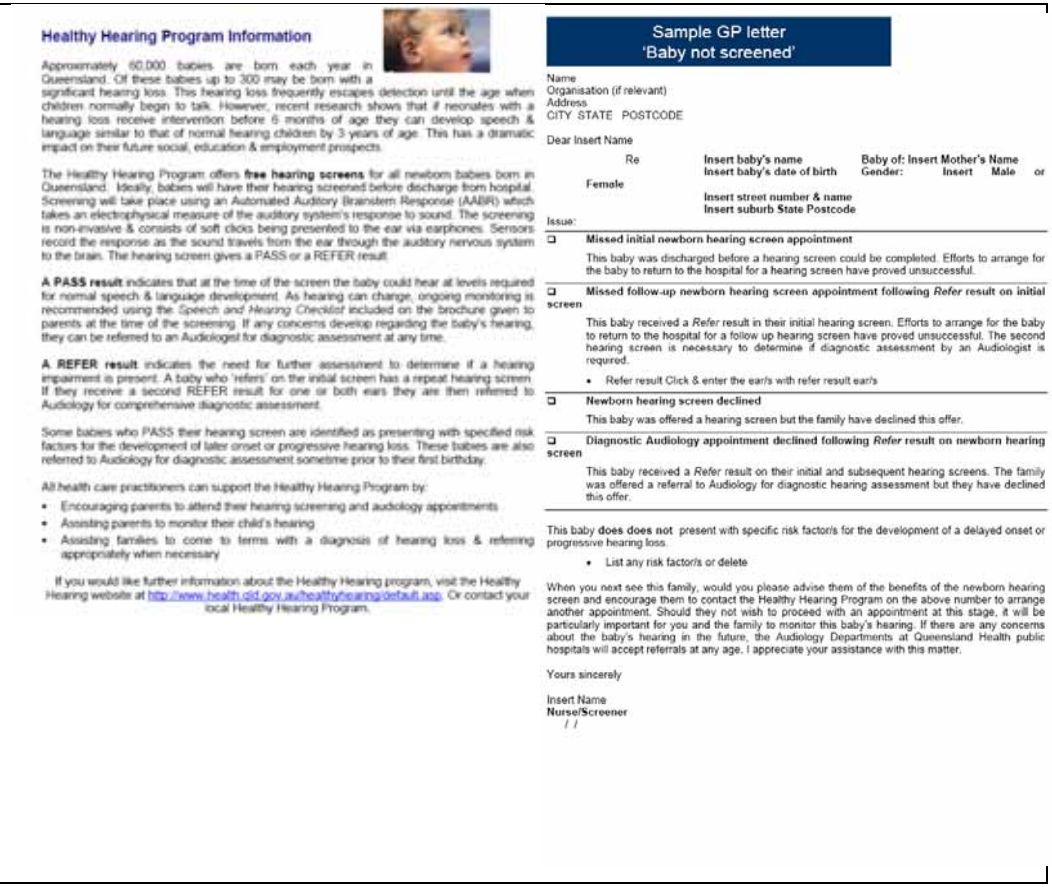
6 to 12 months

- ☐ Understands simple words such as 'no' & 'bye-bye'
- ☐ Begins to copy speech sounds
- ☐ Turns head to soft sounds

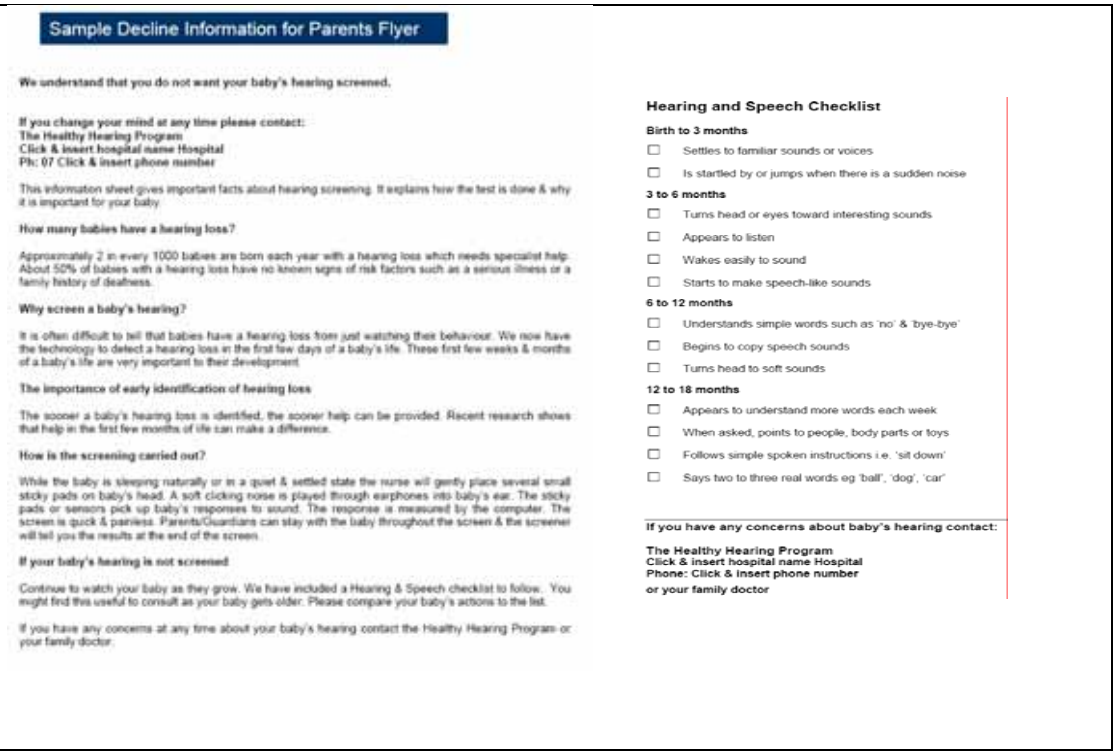
12 to 18 months

- ☐ Appears to understand more words each week
- ☐ When asked, points to people, body parts or toys
- ☐ Follows simple spoken instructions such as 'sit down'
- ☐ Says two to three real words eg 'ball', 'dog', 'car'

If you have any concerns about your baby's hearing contact your doctor.

Title	**GP re baby not screened** Tick box options for reason ▪ Includes Healthy Hearing Information sheet ▪ Includes *Hearing & speech checklist*	
Target Group	Nominated GP of babies who do not have a hearing screen commenced/completed	
Purpose	▪ To notify GP: o that baby's screen has not been commenced/ completed o advise of the need for ongoing monitoring against the Hearing & speech checklist o provide contact details for arranging a hearing screen appointment o provide GP with an overview of the hearing screening process for discussion with parents	

Healthy Hearing Program Information
Approximately 60,000 babies are born each year in Queensland. Of these babies up to 300 may be born with a significant hearing loss. This hearing loss frequently escapes detection until the age when children normally begin to talk. However, recent research shows that if neonates with a hearing loss receive intervention before 6 months of age they can develop speech & language similar to that of normal hearing children by 3 years of age. This has a dramatic impact on their future social, education & employment prospects.
The Healthy Hearing Program offers **free hearing screens** for all newborn babies born in Queensland. Ideally, babies will have their hearing screened before discharge from hospital. Screening will take place using an Automated Auditory Brainstem Response (AABR) which takes an electrophysical measure of the auditory system's response to sound. The screening is non-invasive & consists of soft clicks being presented to the ear via earphones. Sensors record the response as the sound travels from the ear through the auditory nervous system to the brain. The hearing screen gives a PASS or a REFER result.
A PASS result indicates that at the time of the screen the baby could hear at levels required for normal speech & language development. As hearing can change, ongoing monitoring is recommended using the *Speech and Hearing Checklist* included on the brochure given to parents at the time of the screening. If any concerns develop regarding the baby's hearing, they can be referred to an Audiologist for diagnostic assessment at any time.
A REFER result indicates the need for further assessment to determine if a hearing impairment is present. A baby who 'refers' on the initial screen has a repeat hearing screen. If they receive a second REFER result for one or both ears they are then referred to Audiology for comprehensive diagnostic assessment.
Some babies who PASS their hearing screen are identified as presenting with specified risk factors for the development of later onset or progressive hearing loss. These babies are also referred to Audiology for diagnostic assessment sometime prior to their first birthday.
All health care practitioners can support the Healthy Hearing Program by:
• Encouraging parents to attend their hearing screening and audiology appointments
• Assisting parents to monitor their child's hearing
• Assisting families to come to terms with a diagnosis of hearing loss & referring appropriately when necessary
If you would like further information about the Healthy Hearing program, visit the Healthy Hearing website at http://www.health.qld.gov.au/healthyhearing/default.asp. Or contact your local Healthy Hearing Program.
Sample GP letter
'Baby not screened'
Name
Organisation (if relevant)
Address
CITY STATE POSTCODE
Dear Insert Name
Re Insert baby's name Baby of: Insert Mother's Name
Insert baby's date of birth Gender: Insert Male or Female
Insert street number & name
Insert suburb State Postcode
Issue:
❑ Missed initial newborn hearing screen appointment
This baby was discharged before a hearing screen could be completed. Efforts to arrange for the baby to return to the hospital for a hearing screen have proved unsuccessful.
❑ Missed follow-up newborn hearing screen appointment following *Refer* result on initial screen
This baby received a *Refer* result in their initial hearing screen. Efforts to arrange for the baby to return to the hospital for a follow up hearing screen have proved unsuccessful. The second hearing screen is necessary to determine if diagnostic assessment by an Audiologist is required.
• Refer result Click & enter the ear/s with refer result ear/s
❑ Newborn hearing screen declined
This baby was offered a hearing screen but the family have declined this offer.
❑ Diagnostic Audiology appointment declined following *Refer* result on newborn hearing screen
This baby received a *Refer* result on their initial and subsequent hearing screens. The family was offered a referral to Audiology for diagnostic hearing assessment but they have declined this offer.
This baby **does does not** present with specific risk factor/s for the development of a delayed onset or progressive hearing loss.
• List any risk factor/s or delete
When you next see this family, would you please advise them of the benefits of the newborn hearing screen and encourage them to contact the Healthy Hearing Program on the above number to arrange another appointment. Should they not wish to proceed with an appointment at this stage, it will be particularly important for you and the family to monitor this baby's hearing. If there are any concerns about the baby's hearing in the future, the Audiology Departments at Queensland Health public hospitals will accept referrals at any age. I appreciate your assistance with this matter.
Yours sincerely
Insert Name
Nurse/Screener
/ /

Title	**Decline information for parents**	
Target Group	Parents who decline the hearing screen	
Purpose	▪ Information Invitation for parent/s to make contact at a later date	

Sample Decline Information for Parents Flyer
We understand that you do not want your baby's hearing screened.
If you change your mind at any time please contact:
The Healthy Hearing Program
Click & insert hospital name Hospital
Ph: 07 Click & insert phone number
This information sheet gives important facts about hearing screening. It explains how the test is done & why it is important for your baby.
How many babies have a hearing loss?
Approximately 2 in every 1000 babies are born each year with a hearing loss which needs specialist help. About 50% of babies with a hearing loss have no known signs of risk factors such as a serious illness or a family history of deafness.
Why screen a baby's hearing?
It is often difficult to tell that babies have a hearing loss from just watching their behaviour. We now have the technology to detect a hearing loss in the first few days of a baby's life. These first few weeks & months of a baby's life are very important to their development.
The importance of early identification of hearing loss
The sooner a baby's hearing loss is identified, the sooner help can be provided. Recent research shows that help in the first few months of life can make a difference.
How is the screening carried out?
While the baby is sleeping naturally or in a quiet & settled state the nurse will gently place several small sticky pads on baby's head. A soft clicking noise is played through earphones into baby's ear. The sticky pads or sensors pick up baby's responses to sound. The response is measured by the computer. The screen is quick & painless. Parents/Guardians can stay with the baby throughout the screen & the screener will tell you the results at the end of the screen.
If your baby's hearing is not screened
Continue to watch your baby as they grow. We have included a Hearing & Speech checklist to follow. You might find this useful to consult as your baby gets older. Please compare your baby's actions to the list.
If you have any concerns at any time about your baby's hearing contact the Healthy Hearing Program or your family doctor.
Hearing and Speech Checklist
Birth to 3 months
Settles to familiar sounds or voices
Is startled by or jumps when there is a sudden noise
3 to 6 months
Turns head or eyes toward interesting sounds
Appears to listen
Wakes easily to sound
Starts to make speech-like sounds
6 to 12 months
Understands simple words such as 'no' & 'bye-bye'
Begins to copy speech sounds
Turns head to soft sounds
12 to 18 months
Appears to understand more words each week
When asked, points to people, body parts or toys
Follows simple spoken instructions i.e. 'sit down'
Says two to three real words eg 'ball', 'dog', 'car'
If you have any concerns about baby's hearing contact:
The Healthy Hearing Program
Click & insert hospital name Hospital
Phone: Click & insert phone number
or your family doctor

Appendix 4: Screener Scripts

Summary of the Various Hearing Screen Scenarios and Key Content Areas for Inclusion

Hearing Screen Scenario	Purpose/Key points to be included
Arranging an initial Healthy Hearing Screen Parent/s not familiar with Healthy Hearing Program	▪ Explain program aims & offer screen ▪ Describe procedure as per brochure o How the screen is done o Potential results o Meaning of a *Pass* & a *Refer* result means o Potential follow up actions (AABR2; Audiology) ▪ Key elements of script all contained in HH brochure ▪ Use brochure as a prompt sheet ▪ Provide parents with an opportunity to ask questions
Arranging an initial Healthy Hearing Screen Parent/s familiar with Healthy Hearing Program	▪ Remind parent/s: o How the screen is done o Potential results o Meaning of a *Pass* & a *Refer* result means o Potential follow up actions (AABR2; Audiology) ▪ Key elements of script all contained in HH brochure ▪ Use HH brochure as a prompt sheet if necessary ▪ Provide parents with an opportunity to ask questions
***Pass* result on the 1st Healthy Hearing Screen** Parent/s of baby with a *Pass* result for both ears & without risk factors	▪ Remind parent/s: o *Pass* only indicates baby can hear at a level required for speech & language development o *Pass* is not for life → ear infections, trauma, etc o Need for them to monitor of baby's milestones against *Hearing & speech checklist* ▪ Advise parents to seek Audiology referral if they are concerned about baby's hearing in the future
***Pass* result on the 1st Healthy Hearing Screen** Parent/s of baby with a *Pass* result for both ears but who has risk factors	▪ Remind parent/s: o *Pass* only indicates baby can hear at a level required for speech & language development o *Pass* is not for life → ear infections, trauma, etc o Need for referral to Audiology for follow up assessment prior to 12 months because of risk factor/s for delayed onset/progressive hearing loss o Need for them to monitor of baby's milestones against *Hearing & speech checklist* ▪ Advise parents to seek earlier referral to Audiology if they have any concerns about baby's hearing prior to the scheduled Audiology appointment
***Refer* result on the 1st Healthy Hearing Screen** Parent/s of baby with a *Refer* result for one/ both ears on AABR1	▪ Remind parent/s that *Refer* result only indicates that further assessment is required ▪ Explain the range of reasons for a *Refer* result, acknowledging a hearing loss as one possibility ▪ Emphasise the importance of attending for the second screen to clarify the situation ▪ Make arrangements with parent/s for AABR2
***Pass* result on the 2nd Healthy Hearing Screen** Parent/s of baby with a *Pass* result for both ears on AABR2 & without risk factors	▪ Remind parent/s: o *Pass* only indicates baby can hear at a level required for speech & language development o *Pass* is not for life → ear infections, trauma, etc o Advise parent/s of potential increased risk of otitis media (glue ear) due to *Refer* result on AABR1 o Need for parents to monitor of baby's milestones against *Hearing & speech checklist* ▪ Advise parents to seek referral to Audiology if they have any concerns about baby's hearing in the future
***Pass* result on the 2nd Healthy Hearing Screen** Parent/s of baby with a *Pass* result for both ears on AABR2 & without risk factors	▪ Remind parent/s: o *Pass* only indicates baby can hear at a level required for speech & language development o *Pass* is not for life → ear infections, trauma, etc o Need for referral to Audiology for follow up assessment prior to 12 months because of risk factor/s for delayed onset/progressive hearing loss o Need for them to monitor of baby's milestones against *Hearing & speech checklist* ▪ Advise parents to seek earlier referral to Audiology if they have any concerns about baby's hearing prior to the scheduled Audiology appointment

Hearing Screen Scenario	Purpose/Key points to be included
Refer result on the 2nd Healthy Hearing Screen Parent/s of baby with a *Refer* result for one or both ears on AABR1	▪ Remind parent/s: o that *Refer* result only indicates that more detailed assessment by Audiology is required o of possible reasons for a *Refer* result, acknowledging the possibility of a hearing loss as one reason but not the only reason ▪ Explain the referral process to Audiology ▪ Provide parents with a copy of the brochure *Your Baby's Audiology Hearing Test* ▪ Check that parents are happy to be referred to the Family Support Service who will contact them within a week of referral by mail & phone ▪ Provide parents with Audiology contact details & encourage them to contact the Audiologist of FSF if they have questions/concerns prior to the appointment
Parent/s decline Healthy Hearing Screen Following standard introduction	▪ If a parent declines: o Ask if they have a specific reason for declining o Assess if there are is misunderstanding re risks, process, etc & clarify o Reinforce implications for i.e. speech, language, education if HL remains undetected o Ask parent to sign *Decline* section of the *Healthy Hearing Consent* form o Advise that the baby's GP/paediatrician will be notified o Offer to screen later should they change their mind o Provide Healthy Hearing brochure & contact details
3rd screen required due to result reversal (Flip/flop) Parent/s of baby with Refer result on opposite ears on AABR1 & 2	▪ Explain to parents that: o 2nd Refer result is required on the same ear for referral to Audiology o if another Refer result is obtained in either ear then the baby will be referred to Audiology ▪ Remind parent/s that the *Refer* result still only indicates that further assessment is required ▪ Reassure parents that the result reversal does not indicate an equipment malfunction but can result from fluctuating responses in the ears due to changing fluid levels, debris in the ear from the birth process moving, positioning of the baby, etc ▪ Emphasise the importance of attending for the third screen to clarify the situation Make arrangements with parent/s for AABR2

Healthy Hearing Screener Script - Parent Information

Introduction / Explanation of Screening process to parent / carer

Hello, I am …….from the Healthy Hearing team.
I would like to offer your baby a free hearing screen.
Have you had an opportunity to read the brochure?
I will need to obtain your written consent in order to proceed. Do you have any questions?
Can I explain the screening process for you?

- We use a technique called an AAABR / Automated Auditory Brainstem Response.
- Three small sticky gel pads will be gently placed on your baby's head and shoulder area
- Earphones are placed over both ears, and a series of soft clicking noises are played through these earphones.
- The sticky pads or sensors will pick up your baby's brain response to these sounds and send it to the machine for analysis
- The machine will automatically indicate a PASS or a REFER result.
- It is a quick screen if your baby is in a quiet/settled state. It is not painful and most babies sleep through the screen.
- Do you have any questions? Can I go over any details again for you?

The results of the screen

- If your baby is settled & the screen is completed, we can tell you the result at the end of the screen.
- If your baby does not settle we will attempt the screen later in the day.
- As soon as the screen is complete and the machine gives an automatic result we will be able to tell you the result.

What does PASS/REFER mean?

A PASS result indicates that your baby hears at levels required for normal speech & language development at the time of the screen. Your baby can hear you speak.

A REFER result means we will need to repeat the hearing screen again.

Obtaining consent

I would like to explain the consent form to you
Have you had an opportunity to look over the brochure describing the screening process?
Do you have any questions about the brochure information?

(Section A)

This section recommends all babies should have their hearing checked

(Section B)

This part outlines there are no known risks of injury to your baby during the screen

There is a small chance of a false result from this screening process (1 in a million)

It is important for you to continue to monitor your baby's hearing even after the screen today

This outlines that a delay in detecting a hearing loss could delay your baby's language development

(Section C)

This is where I sign (screening staff member) after I have explained the screening process for you

I encourage you to raise any questions or concerns at this stage

Should your baby require further hearing tests, your consent on this form will allow us to share the screening information with other health professionals

The screening results will be stored on our database
All information is confidential and no names are used when reports are generated for program evaluation and research purposes

In the situation where your baby can not be screened for a clinical reason, a referral to Audiology will be arranged instead, this will bypass the screening procedure.

This is where you need to tick the box " I do" or "I do not consent"
Please sign and date in this section here…….

(Section D)

This is where I need to sign and date the form after I have explained the screening process to you

This section is used if an interpreter is required

Are you happy to continue with the screen today?
Are there any other questions I can help you with?

PASS outcome Well baby- no 'risk factors'

- A PASS result today indicates that your baby hears at levels required for normal speech & language development at the time of the screen- your baby can hear you speak.
- We will not routinely assess your babies hearing again.
- Hearing constantly changes throughout our lives and it is important that you monitor these changes. This is not a pass for life.
- We recommend that you refer to the hearing & speech checklist in 'Your baby's free hearing screen' brochure. This gives details of the expected responses of your baby up to 18 months of age.
- If you have any concerns regarding your baby's hearing please contact your GP for a referral to Audiology.
- The Audiology Department located at the Royal Children's Hospital can assess a child's hearing at any age using a variety of age appropriate techniques.
- Do you have any questions? Can I go over any details again for you?

PASS result from AABR screening - Babies with 'Risk Factors'

- A PASS result today indicates that your baby hears at levels required for normal speech & language development at the time of the screen- your baby can hear you speak.
- Hearing constantly changes throughout our lives and it is important that you monitor these changes. This is not a pass for life.
- We recommend that you refer to the hearing & speech checklist in 'Your baby's free hearing screen' brochure. This gives details of the expected responses of your baby up to 18 months of age.
- Your responses to the "at risk" questions for progressive hearing loss highlight the need for us to continue to monitor your baby's hearing closely.

**(Script for generic surveillance appointment)

- You will be offered an appointment around your baby's 1st birthday to attend the Audiology Department at the ….(insert Hospital) …. for further assessment.
- This appointment will be posted out to you.
- However, if you become concerned regarding your baby's hearing they will accept a referral from your GP at any stage.
- Do you have any questions? Can I go over any details again for you?

**(Script for EARLY surveillance by 6 weeks post screening e.g. Craniofacial anomalies, and Syndromes associated with progressive hearing loss)

- You will be offered an appointment for your baby within 6 weeks to attend the Audiology Department at the …(insert Hospital) ...for further assessment.
- This appointment will be posted out to you.
- However, if you become concerned regarding your baby's hearing before this appointment, please contact the Audiology department and discuss this matter further.
- Do you have any questions? Can I go over any details again for you?

A REFER result on AABR1

- A REFER result today indicates that your baby needs another screen.
- There are several reasons why your baby requires a further screen
  1. The screen was attempted when the baby was too young (Protocol recommends 6 hours or older)
  2. Baby was unsettled during the screen
  3. Excessive background noise during the screen – screening conditions or environment were not ideal
  4. Baby may have fluid or a temporary blockage in their ear
  5. Temporary blockage of the external ear canal due to
     - position of baby's head
     - pressure on the canal
     - residual birth debris in the ear canal
     - residual vernix in the ear canal
  6. Possibility of some degree of hearing loss
  7. Do you have any questions? Can I go over any details again for you?

What happens if the baby refers?

- If the baby refers on either ear, we will repeat the screen
- This may be in hospital or we will arrange for you to return for another screen as an outpatient

REFER AABR1- Appointment arranged AABR2

- The same technique will be used to assess your baby's hearing.
- The nurse screener will be able to explain the results following the screen.
- This repeat screen will be undertaken either in the Hospital prior to discharge or in OPD.
- If you are unable to attend the OPD appointment please contact 36461484 and we will be happy to arrange another appointment for you.
- Do you have any questions? Can I go over any details again for you?

PASS following AABR2 screen – include otitis media information

- Refer to appropriate "PASS" script above ie Pass with / without risk factors

  (Include the otitis media evidence from Karen Doyle et al 2004 paper)
- There is some evidence that babies who do not pass their first hearing screen at 48 hours of life, but go on to pass their second screen have a higher incidence of an otitis media before their first birthday. (twice as likely to develop)
- We recommend that you are very vigilant in monitoring your baby's speech and language milestones and seek the review of your family GP when concerns arise.

REFER AABR2- Diagnostic appointment to be arranged at RCH

- A REFER result has been obtained on your baby's second screen.
- Repeat the above reasons for a refer outcome…….. ie blockage of external or internal ear , possibility of a hearing loss
- I will arrange an appointment for a more detailed (diagnostic) test using a similar technique with earphones and sticky pads with the RCH Audiology department
- This is performed by an Audiologist who is a specialist in the testing of hearing.
- Along with your referral to Audiology, we will link you with the QLD Hearing Loss Family Support Service.
- Within the next week you will receive information from this team in the mail. This service will be able to assist you with any questions and concerns you may have, and may be able to help with any difficulties attending the upcoming appointment.

- You will need to attend Audiology Department Level 1 Royal Children's Hospital, Herston. (or Private service provider) Please check your appointment letter for details and contact numbers
- I will return with an appointment letter stating the date and time, a location map to help you find the Audiology department, and parking stations in the area.
- Do you have any questions? Can I explain the process again for you?

It is best if your baby sleeps during the audiology testing. They recommend that you feed & settle your baby just before the appointment. It may take up to 2 hours and will give them more information about your baby's hearing. They will discuss the results with you following the assessment.

We suggest you have another adult with you to assist with the baby, the testing equipment and information gathering at the appointment.

It is important that you contact Audiology if you are unable to attend your appointment on 3636 7280. (or private service provider)

You can ring and speak to an Audiologist at any time if you require any further information regarding the assessment on 3636 7280; they are very keen to answer your questions.

DECLINE FROM PARENT / CARER

When a parent declines the HHP screen we are required to

- record their decision on the HHP consent form
- document decline in the baby's medical record
- record the decline on the HHP Screening and Referral form
- advise them of the proactive language milestone monitoring required by them

I respect your decision to decline the HHP screen
May I ask why you are declining? Can I explain any part of the screening process again for you?

I will make a note of your decline in your baby's medical record.
Would you please indicate your decline on this form (HHP consent form/ section C) in this section here….

Should you wish to change your mind at a later date, we can perform the hearing screen up to 3 months of age. We can not offer it after that time period.
The contact phone number to arrange a screen is …….. I will write it here on the brochure

Can I show you this section on the brochure (point out milestones) that lists the normal language milestones your baby should be achieving up to 18 months of age.

We will be in contact with your family GP to request continued monitoring of your baby's language milestones in partnership with you.

Revised: August 2013, Review: 2015

Appendix 5: Hearing Loss - Syndrome and condition list for congenital and progressive hearing loss

	Title	Description	Hearing loss
A	Achondroplasia	Dwarfism, skeletal ossification disorder	Conductive & Sensorineural Hearing loss
	Albers-Schonberg Disease of Osteopetrosis	Brittle, thickened, chalky bones	Conductive and Sensorineural Hearing Loss
	Albinism with blue irides	Pigmentation disorder eyes,skin, hair	Sensorineural Hearing loss
	Alport's Syndrome	Nephritis and cataracts	Progressive Sensorineural Hearing Loss
	Apert Syndrome	Craniosynostosis, midface anomalies, middle ear involvement	Conductive Hearing loss
	Aplasias (errors during embroyonic development)		
	Michel aplasia	Complete absence of inner ear & auditory nerve	Sensorineural hearing loss
	Mondini aplasia	Abnormal development of the structure (turns) of the cochlear	Sensorineural hearing loss
	Scheibe aplasia	Abnormal formation of the cochlear membrane	Sensorineural hearing loss
	Asphyxia at birth / neonatal period	Rescusitation required / poor APGARs, seizures, neurological involvement	Sensorineural hearing loss, auditory neuropathy
B	Bacterial meningitis	Auditory involvement, can have sudden permanent H'loss	Sensorineural hearing loss, central effects
	Bjornstad Syndrome	Dry, brittle, flat, twisted hair	Sensorineural Hearing Loss
	Branchio-Oto-Renal syndrome (BOR)	Renal anomalies, auricular pits, pinnae malformations	Conductive, sensorineural and mixed hearing losses
	Carraro Syndrome	Absence of the Tibia bone	Sensorineural Hearing Loss
C	Camurati-Engelmann Disease	Skeletal - enlarged diaphysis of the long bones	Conductive and Sensorineural Hearing Loss
	Chemotherapy medications (mother and baby)	Cisplatin, Carboplatin - inner ear hair cells affected	Sensorineural hearing loss
	Cerebral palsy	Hypoxic episode during development or birth asphyxia	Sensorineural Hearing Loss
	Craniofacial abnormalities		
	Atresia of the ear canal	Atresia, stenosis of the ear channel	Conductive, Sensorineural Hearing Loss/mixed
	Absence or malformed pinna	Atresia, stenosis, malformation of the pinnae	Conductive, Sensorineural Hearing Loss/mixed
	Cleft palate	Malformation of the hard palate (Exclude cleft lip if only feature present)	Conductive Hearing loss
	CHARGE syndrome	Coloboma - eyes, Heart, Atresia of the nares, Genital, Ear - deafness	Conductive, sensorineural hearing loss, and mixed. Can have aud neuropathy
	Cleidocranial Dysostosis	Retarded ossification, narrowed auditory canal	Conductive & Sensorineural Hearing Loss
	Cockayne's syndrome	Growth failure and neurologic delay, retinal atrophy,	Sensorineural Hearing Loss
	Cornelia de Lange Syndrome	SGA, limb malformations, cardiac defects, cleft palate	Conductive, SN or mixed hearing losses
	Crouzon's syndrome	Craniosynostosis, midface anomalies, outer & middle ear defects	Conductive, SN or mixed (Majority are conductive)
D	Dwarfism	Skeletal anomalies, shortness, short fingers	Sensorineural Hearing Loss
	Down syndrome	Middle ear anomalies - ossicles, otitis media infections	Conductive, SN or mixed hearing losses
E	Encephalitis	Infection, Auditory involvement	Sudden permanent Sensorineural Hearing Loss
	Engelmann's Syndrome	Bone dysplasia, increased skeletal density affecting auditory function	
F	Fanconi's anaemia syndrome	Impaired renal transport, growth delay	Sensorineural Hearing Loss
	Family history of hearing loss	Permanent hearing loss evident in early infancy < 6 years (see QH - S&R list)	Conductive or sensorineural
	Fetal Alcohol Syndrome	LBW, skeletal anomalies, cleft palate, pinnae anomalies	Conductive and Sensorineural Hearing Loss
	Fraser Syndrome	Adherent eyelids, external ear malformations, syndactyly	Conductive and Sensorineural Hearing Loss
	Friedreich Ataxia	Progressive ataxia, cataracts	Sensorineural Hearing Loss
G	Goldenhar's syndrome	Eye, ear and mouth anomalies	Conductive H'loss or Sensorineural Hearing Loss
H	Hemifacial microsomia	Abnormal development on one side of the face, atresia/ stenosis canal	Conductive H'loss or Sensorineural Hearing Loss
	Hermann's Syndrome	Late onset of disease. Epilepsy, speech, ataxia, renal disease	Sensorineural Hearing Loss
	Hyperbilirubinemia	Dampening of the Auditory nerve function due to excessive bilirubin	Sensorineural Hearing Loss, may have aud neuropathy

Appendix 5: Hearing Loss - Syndrome and condition list for congenital and progressive hearing loss

	Title	Description	Hearing loss
	Hypoxic Ischaemic Encephalopathy **HIE**	Severe aphyxia with neurological sequalae, hypotonic limbs, significant morbidity	Sensorineural Hearing Loss, may have aud neuropathy
	Hydrocephalus	IVH Grade 3 & 4, internal cranial anomalies, 8th Cranial Nerve involvement	Sensorineural Hearing Loss
	Hunter's and Hurler's Syndrome	Progressive manifestation of coarse facial features	Mixed Hearing loss
I	**Infections**		
	Cytomegalovirus	Herpes virus 5, microcephaly, hepatosplenomegaly, jaundice, IUGR	Sensorineural Hearing Loss
	Herpes	Congenital neonatal herpes infection HSV-1 & 2 - High mortality	Sensorineural Hearing Loss
	Rubella	LBW, purpura, jaundice, Organ of Corti degeneration	Sensorineural Hearing Loss
	Toxoplasmosis	Parasitic infection, chorioretinitis, cerebral calcification, convulsions	Sensorineural Hearing Loss
	Syphillis	Nasal discharge, rash, anaemia, jaundice, osteochondritis	Sensorineural Hearing Loss
	Intraventricular haemorrhage **IVH**	Bleeding within the brain structures causing adverse neurological complications	Sensorineural Hearing Loss and Central effects
J	Jervell and Lange-Nielsen syndrome	Cardiovascular disorder, fainting, sudden death a feature, auditory involvement	Sensorineural Hearing Loss
K	Keratopachyderma and digital Constrictions Nephrosis	Pigment disorder, may include renal disease	Sensorineural Hearing Loss
	Klippel-Feil syndrome	Craniofacial and skeletal disorder, short neck, cleft, poorly developed inner ear structures	Conductive and Sensorineural Hearing Loss
L	Laurence-Moon-Biedl-Bardet Syndromes	Retinitis pigmentosa, polydactyly	Sensorineural Hearing Loss
	LEOPARD Syndrome (Multiple lentigines syndrome)	Pigment disorder, café au lait spots, cardiac, ocular, genital, growth delay	Sensorineural Hearing Loss
	Long QT Syndrome	Cardiac condition	
M	Marshall Syndrome	Short stature, skeletal defects, cataracts	Sensorineural Hearing Loss
	Meningitis	Inner hair cells in cochlear damaged by virus	Sensorineural Hearing Loss
	Mitochondrial disorders	DNA - Maternal inheritance pattern	
	Moeibus(Mobius)Syndrome	Connective tissue disorder, facial paralysis Cranial nerves 6 & 7, middle ear anomalies	Conductive and Sensorineural Hearing Loss
	Muckle-Wells Syndrome	Onset in teens, urticaria, renal failure	Sensorineural Hearing Loss
N	Neurofibromatosis type II	Intracranial tumours, 8th Cranial nerve, acoustic neuroma	Sensorineural Hearing Loss
	Noonan's Syndrome	See Leopard syndrome, café au lait spots	Sensorineural Hearing Loss
	Norries Syndrome	Eye disorder, auditory impairment	Sensorineural Hearing Loss
O	Oculo-Auriculo-Vertebralia Spectrum (OAV)	Facial asymmetry, anomalies of external, middle ear, cranial nerve	Sensorineural Hearing Loss and Central effects
	Optic atrophy and polyneuropathy	Progressive visual loss, polyneuropathy in childhoods	Sensorineural Hearing Loss (progressive)
	Ototoxic Medication - affecting inner ear hair cells	Neomycin, Amikacin, Gentamycin, Kanamycin, Sisomicin, Tobramycin, Dibekacin, Steptomycin	Sensorineural Hearing Loss
		Frusemide (loop diuretic used in conjuction with Antibiotics) Quinine - malarial treatment	Sensorineural Hearing Loss
	Osteogenesis imperfecta	"brittle bones", stapes malformation	Conductive H'loss and Sensorineural Hearing Loss
P	Paget's disease	Juvenile skeletal disorder, bone pain, swelling	Progressive mixed h'loss
	Persistent Pulmonary Hypertension of the Newborn **PPHN**	Ventilation, progressive hypoxia, persistent fetal circulation	Sensorineural Hearing Loss and Central effects
	Pierre Robin Syndrome	Craniofacial anomaly, micrognathia, glossoptuosis, may have cleft palate	Conductive & Sensorineural Hearing Loss
	Periauricular abnormalities	Periauricular pits, tags, fistulas, ear canal atresia, facial paralysis	Conductive or sensorineural
	Periventricular leucomalacia **PVL**	Ischaemic cystic changes in the brain matter predisposing to Cerebral palsy	
	Piebaldness	Lack of pigment in hair, ataxia, blue irides	Sensorineural Hearing Loss
	Pendred's Syndrome	Thyroid goiter - iodine imbalance in inner hair cells	Sensorineural Hearing Loss
	Pyle's Syndrome	Enlargement and sclerosis of the facial bones, ribs, clavicles	Sensorineural Hearing Loss
Q			
R	Refsum's Syndrome	Organ of Corti degeneration, inner ear anomalies, eye disorder	Progressive Sensorineural Hearing Loss
	Richards-Rundle Syndrome	CNS disorder, ataxia muscle wastings	Progressive Sensorineural Hearing Loss
S	Stickler syndrome	Flattened facial profile, cleft palate, ocular changes	Conductive & Sensorineural Hearing Loss
T	Treacher Collins syndrome	Head and neck anomalies, atresia of canal, abnormal middle ear	Conductive H'loss
	Trisomy 21 (Down syndrome)	Recurrent Middle ear infections	Conductive & Sensorineural Hearing Loss
	Trisomy 13 -15 & 18	High mortality rate	Conductive or Sensorineural Hearing Loss
	Turner's Syndrome	Gonadal dysgenesis, webbed neck & digits, micrognathia	Conductive & Sensorineural Hearing Loss
U	Usher Syndrome	Retinitis pigmentosa, tunnel vision, vertigo organ of Corti degeneration	Sensorineural Hearing Loss

Appendix 5: Hearing Loss - Syndrome and condition list for congenital and progressive hearing loss

	Title	Description	Hearing loss
V	Ventilation	Mechanical ventilation for longer than 5 days - increased neonatal risks	Sensorineural Hearing Loss
	Van der Hoeve's syndrome	"brittle bone", stapes malformation	Conductive & Sensorineural Hearing Loss
	Vohwinkel-Nockemann Syndrome	See Keratopachyderma reference above	Sensorineural Hearing Loss (may be progressive)
	Von Reckinghausen's Syndrome	Hyperkeratosis of palms, soles, knees, elbows, acoustic neuroma, renal	Sensorineural Hearing Loss
W	Waardenburg's Syndrome (Type 1&2)	White forelock, iris colour different in one eye, prominent mandible, cleft	Sensorineural Hearing Loss
	Wildervanck's Syndrome	Dysmorphic facial features, atresia of ear canals, eyeball retraction,	Sensorineural Hearing Loss or mixed
	Winter Syndrome	Renal anomalies, genital malformation, malformed ear and canals	Conductive H'loss
XYZ			

References

John Muir Medical Centre USA - Hearing loss indication list 2000
Patricia Gillilan - Audiologist USA
Northern and Downs Text - Hearing in Children 5th edition 2002
Newton - Paediatric Audiological Medicine 2002

Reviewed May 2007 *Amended March 2012*

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Appendix 6: Troubleshooting Measures

Reducing Screening Times & 'False Refer' Results

Screening times can be reduced and false Refer results minimised through:

- Appropriate baby selection
- Correct baby preparation
- Active monitoring of the progress of the screen.

A hearing screen should take between 4 and 7 minutes. Although a Refer result may take a little longer, it should still take only take 7 to 10 minutes if the baby is well prepared and myogenic and impedance readings are low.

Baby Selection

The key indicator for successful screening is appropriate baby selection. For best results, babies should be calm, quiet, settled and recently fed.

Attempting to screen an unsettled or hungry baby rarely saves time due to longer screening times resulting from:

- Higher myogenic which slows the screen
- Frequent pausing of the screen to settle the baby
- Need to re-screen due to a *Refer* result

Baby Preparation

Time taken to prep the baby's skin and correctly apply sensor tabs and ear couplers will pay dividends in terms of reduced screening times and reduced parental anxiety associated with a false *Refer* result.

Refer to the Algo 3 or Algo 3i manual and Scanmedics' guides for detailed information on baby preparation and correct application of the sensors and ear couplers.

Monitoring Progress of the Screen

Once a screen is commenced, it is important to monitor its progress in order to identify any problems that may develop and to rectify them in a timely manner. Important aspects to monitor include:

- Progress bars for each ear
- Impedance levels
- Myogenic level
- Ambient noise levels

Troubleshooting will be required if:

- No segments have appeared in the progress bar for either ear by **around 2000 to 3000 sweeps**
- Segments in the progress bars **remain static** for any length of time or keep disappearing
- Screen is taking **more than 10 minutes**

More in-depth troubleshooting will be required if segments in the progress bars have not appeared or progressed by **around 7000 sweeps**

In a situation where the bar is progressing well for one ear but not the other, the recommended procedure is to wait for a result from this ear before undertaking troubleshooting for the other ear.

Once all aspects of troubleshooting have been checked, it is then important to allow the Algo to continue and complete the screen without further interference. If baby selection and preparation guidelines have been followed and appropriate troubleshooting measures undertaken, the outcome will be a valid result regardless of whether it is a *Pass* or *Refer*.

A screen should only be discontinued prior to a result being obtained for both ears if:

- The baby has become agitated and attempts to settle them have failed
- It is realized that the equipment is not attached to the baby correctly or is faulty (eg cracked/broken/loose cable; ear coupler dislodged)
- Consumables have been applied incorrectly (eg ear transducers reversed)

A screen should never be discontinued because:

- The segments on the progress bar/s are not progressing or keep disappearing, despite thorough troubleshooting
- The progress bars suggest that the baby is about to receive a *Pass* result for both ears
- The progress bars suggest that the baby is about to receive a *Refer* result for 1 or both ears

Reasons for continuing a screen for longer than 20 minutes would need careful consideration. However, it is important to assess each situation individually and for the nurse conducting the screen to use their judgment. For example, if the baby is older and more alert and/or the opportunity to perform a screen at another time is unlikely, then it may be worth persevering with the screen despite it taking longer than recommended and/or conditions being less than ideal.

And remember … if a baby obtains a *Pass* in the one ear but becomes unsettled and the screen is discontinued before a result is obtained in the second ear, you will need to **re-screen both ears**.

Troubleshooting Tips

Problems encountered during screening may be associated with the:

- Baby
- Environment
- Screening Equipment (Algo)

Some questions to ask during a hearing screen if the progress bars are not progressing and/or the screening time is prolonged are listed in the following table.

Question	Action
Is the sound getting in? o Are earphones placed correctly over the baby's ears and with a good seal? o Is the ear canal open? o Are the transducers properly inserted into the ear couplers?	o Massage the tragus (ear canal opening), preferably prior to applying the ear couplers o When applying an ear coupler, roll it on from back of the ear to the front to prevent it from closing the ear canal o Check if the **LED** lights are flashing (older style cable) o The screener may need to hold the ear coupler/s gently top and bottom if the ear couplers do not have a good seal o Reposition the baby to reduce the risk of the ear canal being pushed closed by the ear coupler/s, mum's arm, etc
Is the baby's ABR response getting back to Algo?	o Check sensors & cables are properly connected o Check cables not cracked or broken
Is myogenic, electrical interference or ambient noise preventing the Algo from detecting the signal?	o Check that Myogenic, Impedance& Ambient levels are not too high as this will slow screening down & prevent the Algo from detecting the signal

For detailed guidance on troubleshooting, please refer to the Scanmedics flowchart *Troubleshooting Measures: How to Improve Screening Times & Reduce the "False" Refer Rate*.

For other information on baby selection, preparation and troubleshooting measures please refer to the *Natus Algo 3/3i Newborn Hearing Screener Trouble Shooting* and the User Manuals for the Algo 3 &/ 3i.

Suspected Equipment Problems

If you suspect a problem with the screening equipment as a result of repeated *Refer* results for the same ear on different babies or ongoing difficulties reducing Impedance or Myogenic levels:

- Perform the 3 equipment checks as per the equipment manual using the plastic check kit to confirm if the machine if operating correctly
- Notify your local facility Healthy Hearing coordinator of your concerns
- Contact the equipment suppliers, Scanmedics (02 9882 2088) and/or your Area Healthy Hearing Coordinator to discuss you concerns

Post Screen

Where possible, a baby should be left in the same settled state as they were in prior to the screen. To minimise any discomfort for the baby when the ear couplers are removed, a damp wipe may be used to help release the gel on the ear couplers in order to reduce pulling on the hair and/or skin.

Any baby wash or gel should be wiped off the baby's skin on completion of the screen.

NATUS ALGO3 NEWBORN HEARING SCREENER
"TROUBLE SHOOTING GUIDE "

IMPEDANCE and SENSOR Problems:

If impedance reading **>99 kOhms**, after careful prepping, suspect an equipment problem.
"**Perform Impedance Check**"

Check Equipment

PCA Cable (Sensor cable):

- Check Sensor cable is plugged securely into the Preamp
- Check cables are securely plugged into back of Algo3 and there is no obvious damage

Sensors and clips:

- Place the sensors on the baby when you get to " **Baby Preparation Screen"**
  (*This allows you to monitor the impedance while preparing the baby)*
- Handle sensors only by the tab or by the edge & replace on plastic card if re-prepping
  Place Nape (**centred back of neck**) then Common (**high on front or back of shoulder)**
  Now check the impedance level. (*Then Place ear couplers, first the one the infant is lying on and then the upper one)*
  Place the vertex sensor last of all **(centre high forehead**).
- Check correct placement of sensors:
  White (nape), **Green** (common), **Black** (vertex)
- If impedance >**12 k ohms** make sure that none of the sensors have lifted off the skin
- Make sure clips are connected to the correct sensor and not loose

Check Baby:

- Before screening evaluate baby's skin type as you may need to prep the skin if it is:
  Oily, dry & flaky or has an abundance of hair or lotion on the skin.
  First you may need to clean/prep the skin with soap and water, some hospitals prefer to use "Soap free" baby wash.
  This reduces electrical impedance across the baby's skin and allows for better conductivity.
- If impedance does not initially come down, place fingers on sensors and then press gently.
- If the impedance remains high >12kOhms you may have to prep or reprep the skin.
  Re-prep site with NuPrep gel, take off sensor, place a very small amount of NuPrep on a gauze pad, hold skin taught and gently rub the skin, remove all the NuPrep with another area of the gauze and replace the sensor
  Prep area larger then sensor as entire adhesive surface of sensor is conductive.
  If the baby's skin is extremely dry or the sensor becomes dry, re-hydrate with a drop of N/Saline
- May need to use a fresh sensor if site has needed to be prepped more than twice, this is rare.
- Make sure the sensors have a low impendence value before screening.
  They should be **<10 kOhms** and stable preferably lower.
  If Impedance is **>12 kOhms** screening cannot proceed.
  You will need to prep or reprep the skin and try & get lower impedance levels.
  The most sensitive to this is the **Vertex** (forehead) sensor.
- Lower impedances result in faster screening times and fewer false refers.
- If the impedance is still too high, place the sensor clips in the "**Check Kit"**
  (You can do this while in screening mode) Perform" **Impedance Check**"
  Impedances should go down to "**0" kOhms,** If they do not & or fluctuate then there is a problem with the PCA (sensor cable) and it needs to be replaced.

Environment: Not applicable for impedance problems

Natus ALGO3 NEWBORN HEARING SCREENER
"TROUBLE SHOOTING"

MYOGENIC: Muscular or Electrical Interference

Check Equipment

- Check PCA (sensor and Preamp cable) are properly connected & not damaged.
- Check PCA cable not too close to the screener display & cables are not crossing over each other.
- Check Algo is plugged into a hospital grade power outlet
- Check power cord is not coiled when in use
- Check clips are attached only to the purple portion of sensors
- Check correct clips are attached to sensors
- Common sensor is not too close to the Nape sensor
- Check all the sensors are adhering to baby's skin– sometimes the vertex can come loose- press down gently and monitor impedance, reposition and maybe re-prep or use saline to re-hydrate the hydrogel.
  Do not place your fingers on the sensors during screening, this can cause high myogenic
- May need to perform " **Impedance Check"** to make sure that Myogenic Interference is not due to problems with PCA (sensor cable) & Preamp

Check Baby:

- Make sure the baby is not due for a feed, if so, have the baby fed and then screen
- Reposition head and neck to relax & ease possible neck tension.
- Wrap the baby securely. *(Be aware of SIDS recommendation)*
- The baby may be in a deep sleep and relaxed but there may be increased myogenic due to wind, bowel movements or other cramps.
  Try repositioning the baby – incline the crib especially after feeding if appropriate
- Babies withdrawing from drugs may be jittery or have internal myogenic which may not be obvious. May want to screen baby early (day 1) before withdrawal symptoms increase.
- **To calm a restless baby:**
  Can pat or rub the baby's back.
  Gently place your hands on the baby or gently stroke the baby's head.
  Place baby in mum or dads arms (a rocking chair can be very effective)
  Simulate the baby's foetal position by gently cradling one hand over the top of the baby's head and placing the other hand to hold the legs against the tummy
  All of the above can calm an unsettled baby without producing myogenic

Check Environment:

- On a rare occasion there can be interference from another piece of equipment
  E.g. Mobile phones/fluorescent lights/ /electric beds/VCR's. May need to turn them off.
  May need to move away from monitors/infusion pumps/phototherapy lights in immediate vicinity.
- If the baby is quiet and myogenic is still high try another power outlet.
- If there is still too much myogenic, go to Equipment check (**F10)**, perform "**Artifact Check"** this will identify source of myogenic
  If a "**PASS"** then you can be sure the myogenic is coming from the baby, stop and rescreen the baby at a later time when he/she is maybe in a more relaxed state
  If "**FAIL"** this indicates the myogenic is coming from the environment or there is a problem with the equipment, may want to try and rescreen elsewhere.

AMBIENT –ENVIRONMENTAL NOISE

Check Equipment:

- Check **ATA** (transducer) cable is properly attached at back of Algo and not damaged
- Position each ear coupler so cables emerge towards the top of baby's head (like horns)
- Check transducers have a secure connection to ear couplers
- Make sure the ear couplers are sealed around the baby's ear.
  Sometimes if the baby is on his/her side, the shoulder can push up on the coupler allowing ambient noise to intrude.
  May have to hold ear coupler gently, top and bottom to provide a good seal.
- Lights flashing in transducers indicate ambient noise

Check Baby:

- Is the baby crying, pause screening until baby settles down and ambient noise decreases

Check Environment:

- Check the environment – make sure there is not too much environmental noise.
  Eliminate if possible and if not, try and find a quieter spot.
- If the ambient noise bar does not go down and all the trouble-shooting has been addressed
  Go to equipment check (**F10)**, and perform an "**Acoustic Check**"

MONITORING EAR COUPLERS AND FLUCTUATING PROGRESS BAR

If the **progress bar** is constantly fluctuating or does not advance, check the following:-

- A restless/agitated baby needs to be calmed down as this will cause the progress bar to fluctuate.
- Make sure the ear couplers are sealed and close to the baby's head.
- Make sure the ear couplers are over the ear and not pressing on the outer edges of the ear as this can cause a collapsed ear canal.
  If the baby moves, it can reposition the ear coupler it is lying on and cause a closure of the ear canal; check this if the progress bar for that ear is lagging.
  Pause the screen, lift the ear coupler and gently massage the skin around the opening of the ear (tragus) to open up the ear canal and displace any debris. Gently hold the top and bottom of the ear coupler and then see if the progress bars goes up in another 500-1000 sweeps
- If one ear passes and the other ear is lagging make sure the ear coupler is correctly positioned.
- If baby is lying on that ear, pause the screen then turn baby's head so the ear is" up" adjust the ear coupler and continue screening.

Natus ALGO3 NEWBORN HEARING SCREENER
"TROUBLE SHOOTING"

HOW TO REDUCE YOUR SCREENING TIMES AND LOWER REFER RATES

1. Choose the **right baby** well fed/calm/sleeping.

2. **Correct placement of the sensors**

   Nape: (White) – centre and back of the neck.
   If hard to see, better to place down towards the back rather than towards the skull.

   Vertex: (Black) centre of forehead as high as possible

   Common: (Green) high on front or back of the shoulder

3. **Impedance**

   The lower and closer together the impedance numbers are, will result in faster screening times and lower refer rates.

4. Reduce **Myogenic** and **Ambient Noise**

5. **Monitor ear couplers**

   Check if the "**progress bar is moving**" if not you need to troubleshoot.

   If there are any of the following:

   1. **High Myogenic**
   2. **High Ambient Noise**
   3. **High Impedance**
   4. **Slow progress Bar**

   Need to Troubleshoot and "Intervene"

One minute of active Intervention can save you several minutes of screening time

These Guidelines were developed in conjunction with the user manual and Clinical Practice but do not replace the User Manual or Clinical Judgement

Natus ALGO3*i* NEWBORN HEARING SCREENER
TROUBLE SHOOTING AND TIPS

IMPEDANCE and SENSOR Problems:

If impedance reading **>99 kOhms**, after careful prepping, suspect an equipment problem.
"**Perform Impedance Check**"

Check Equipment

PCA Cable (Sensor cable):

- Check Sensor cable is plugged securely into the Preamp
- Check cables are securely plugged into back of Algo3 and there is no obvious damage

Sensors and clips:

- Handle sensors only by the tab or by the edge & replace on plastic card if re-prepping
- After you have '**Entered Data'** press "**OK"** then prepare the baby and attach supplies then proceed to screening.
- Place Nape (**centred back of neck**) then Common **(high on front or back of shoulder)** now check the impedance level.
  Then Place ear couplers, first the one the infant is lying on and then the upper one
  Place the vertex sensor last of all **(centre high forehead**).
- Check correct placement of sensors:
  White (nape), **Green** (common), **Black** (vertex)
- If impedance >**12 k ohms** make sure that none of the sensors have lifted off the skin
- Make sure clips are connected to the correct sensor and not loose

Check Baby:

- Before screening evaluate baby's skin type as you may need to prep the skin if it is:
  Oily, dry & flaky or has an abundance of hair or lotion on the skin.
  First you may need to clean the skin with soap and water
  Some hospitals prefer to use "Soap free" baby wash as this reduces electrical
  Impedance across the baby's skin and allows for better conductivity
- If impedance does not initially come down, place fingers on sensors and then press gently.
- If the impedance remains high **>7kOhms** you may have to prep or reprep the skin prior to screening
- If impedances fall between (**8 & 11kOhms)** the A3i will display "**Impedances Marginal**" message you may begin screening at this point but prepping is recommended
  Re-prep site with NuPrep gel, take off sensor, place a very small amount of NuPrep on a gauze pad, hold skin taught and gently rub the skin, remove all the NuPrep with another area of the gauze and replace the sensor
  Prep area larger then sensor as entire adhesive surface of sensor is conductive.
  If the baby's skin is extremely dry or the sensor becomes dry, re-hydrate with a drop of N/Saline
- May need to use a fresh sensor if site has needed to be prepped more than twice, this is rare.
- Make sure the sensors have a low impendence value before screening.
  They should be **<8 kOhms** and stable preferably lower.
  If Impedance is reaches **12 kOhms** screening cannot proceed.
  You will need to prep or reprep the skin and try & get lower impedance levels.
  The most sensitive to this is the **Vertex** (forehead) sensor.
- Lower impedances result in faster screening times and fewer false refers.
- If the impedance is still too high, place the sensor clips in the "**Check Kit"**
  (You can do this while in screening mode) Perform "**Impedance Check**"
  Impedances should go down to "**0" kOhms,** If they do not & or fluctuate then there is a problem with the PCA (sensor cable) and it needs to be replaced.

Environment: Not applicable for impedance problems

Natus ALGO3*i* NEWBORN HEARING SCREENER
"TROUBLE SHOOTING"

MYOGENIC: Muscular or Electrical Interference

Check Equipment

- Check PCA (sensor and Preamp cable) are properly connected & not damaged.
- Check PCA cable not too close to the screener display & cables are not crossing over each other.
- Ensure A3i display faces away from the baby.
- Check clips are attached only to the purple portion of sensors
- Check correct clips are attached to sensors
- Common sensor is not too close to the Nape sensor
- Check all the sensors are adhering to baby's skin– sometimes the vertex can come loose- press down gently and monitor impedance, reposition and maybe re-prep or use saline to re-hydrate the hydrogel.
  Do not place your fingers on the sensors during screening, this can cause high myogenic
- May need to perform " **Impedance Check"** to make sure that Myogenic Interference is not due to problems with PCA (sensor cable) & Preamp

Check Baby:

- Make sure the baby is not due for a feed, if so, have the baby fed and then screen
- Reposition head and neck to relax & ease possible neck tension.
- Wrap the baby securely. *(Be aware of SIDS recommendation)*
- The baby may be in a deep sleep and relaxed but there may be increased myogenic due to wind, bowel movements or other cramps.
  Try repositioning the baby – incline the crib especially after feeding if appropriate
- Babies withdrawing from drugs may be jittery or have internal myogenic which may not be obvious. May want to screen baby early (day 1) before withdrawal symptoms increase.
- **To calm a restless baby:**
  Can pat or rub the baby's back.
  Gently place your hands on the baby or gently stroke the baby's head.
  Place baby in mum or dads arms (a rocking chair can be very effective)
  Simulate the baby's foetal position by gently cradling one hand over the top of the baby's head and placing the other hand to hold the legs against the tummy
  All of the above can calm an unsettled baby without producing myogenic

Check Environment:

- On a rare occasion there can be interference from another piece of equipment
  E.g. Mobile phones/fluorescent lights/ /electric beds/VCR's may need to turn them off.
  May need to move away from large metal sinks/monitors/infusion pumps or Phototherapy lights in the immediate vicinity.
- If the baby is quiet and myogenic is still high try moving the device to another area.
- If there is still too much myogenic, go to back to main screen **"Device Setup**" then **"Equipment Check**", perform an "**Artifact Check"** it will identify source of myogenic
- If Algo *3i* shows a "**PASS"** during the **"Artifact Check"** it indicates the myogenic is coming from the baby, then stop and rescreen the baby at a later time when he/she is in a more relaxed state
- If "**FAIL"** this indicates the myogenic is either coming from the environment or problems with the equipment you may want to try and rescreen elsewhere.

AMBIENT –ENVIRONMENTAL NOISE

Check Equipment:

- Check **ATA** (transducer) cable is properly attached at back of Algo and not damaged
- Position each ear coupler so cables emerge towards the top of baby's head (like horns)
- Check transducers have a secure connection to ear couplers
- Make sure the ear couplers are sealed around the baby's ear.
  Sometimes if the baby is on his/her side, the shoulder can push up on the coupler allowing ambient noise to intrude.
  May have to hold ear coupler gently, top and bottom to provide a good seal.
- Lights flashing in transducers indicate ambient noise

Check Baby:

- Is the baby crying, pause screening until baby settles down and ambient noise decreases

Check Environment:

- Check the environment – make sure there is not too much environmental noise.
  Eliminate if possible and if not, try and find a quieter spot.
- If the ambient noise bar does not go down and all the trouble-shooting has been addressed
  Go back to main screen **"Device Setup**" then **"Equipment Check**" and
  perform an "**Acoustic Check**"

MONITORING EAR COUPLERS AND FLUCTUATING PROGRESS BAR

If the **progress bar** is constantly fluctuating or does not advance, check the following:-

- A restless/agitated baby needs to be calmed down as this will cause the progress bar to fluctuate.
- Make sure the ear couplers are sealed and close to the baby's head.
- Make sure the ear couplers are over the ear and not pressing on the outer edges of the ear as this can cause a collapsed ear canal.
  If the baby moves, it can reposition the ear coupler it is lying on and cause a closure of the ear canal; check this if the progress bar for that ear is lagging.
  Pause the screen, lift the ear coupler and gently massage the skin around the opening of the ear (tragus) to open up the ear canal and displace any debris. Gently hold the top and bottom of the ear coupler and then see if the progress bars goes up in another 500-1000 sweeps
- If one ear passes and the other ear is lagging make sure the ear coupler is correctly positioned.
- If baby is lying on that ear, pause the screen then turn baby's head so the ear is" up" adjust the ear coupler and continue screening.

Natus ALGO3*i* NEWBORN HEARING SCREENER
"TROUBLE SHOOTING"

HOW TO REDUCE YOUR SCREENING TIMES AND LOWER REFER RATES

1. Choose the **right baby** well fed/calm/sleeping.

2. **Correct placement of the sensors**

   Nape: (White) – centre and back of the neck.
   If hard to see, better to place down towards the back rather than towards the skull.

   Vertex: **(Black)** centre of forehead as high as possible

   Common: (Green) high on front or back of the shoulder

3. **Impedance**

   The lower and closer together the impedance numbers are, will result in faster screening times and lower refer rates.

4. **Reduce Myogenic** and **Ambient Noise**

5. **Monitor ear couplers**: Check if the "**Progress bar is moving**" if not you need to troubleshoot.

   If there are any of the following:

   1. **High Myogenic**
   2. **High Ambient Noise**
   3. **High Impedance**
   4. **Slow progress Bar**

   Need to Troubleshoot and "Intervene"

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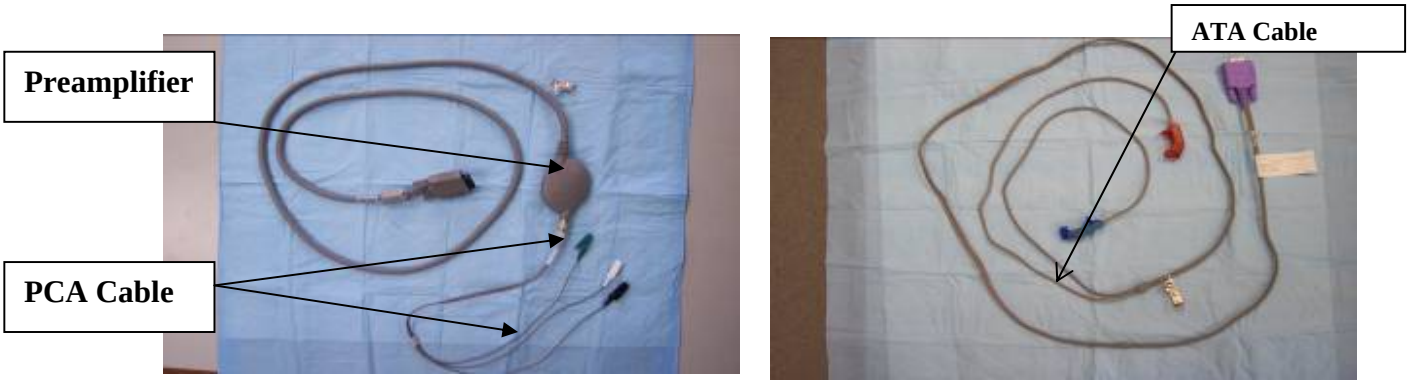
Appendix 7: Cleaning Algo 3 & Algo

Aim: to maximise the life of your Acoustic Transducer Assembly (ATA) & Patient Cable Assembly (PCA)

To help prevent any strain or damage on the cables during cleaning as delicate shielding in the wires can be damaged (***see page 100 Algo 3 Manual***)

To help prevent corrosion of sensor clips due to the build up of sensor adhesive

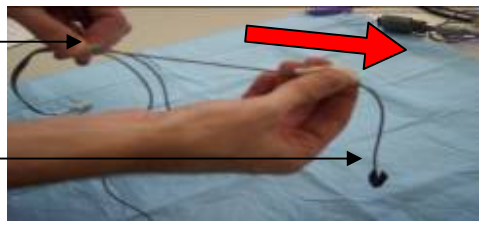
To help reduce any increase in myogenic interference during screening due to damaged cables



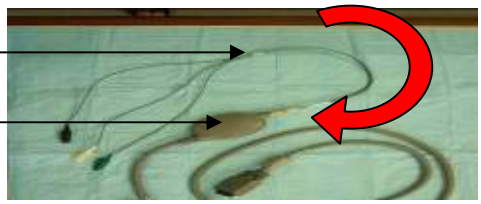
Cleaning Cables:

1. Gently clean Algo cables between each patient use according to your hospital protocol.
2. Cables may be cleaned by using a diluted detergent based solution, isopropyl alcohol or 10% bleach solution *(page 52, Algo 3 manual. page 25, A3i manual)*
3. After each patient use gently clean the **PCA** and **ATA** cables using a cloth dampened ***(not soaked)*** with appropriate cleaning solution.
4. **Never immerse** patient cables or transducers in water or cleaning solution
5. **Do not** saturate the cables
6. **Do not** stretch the cables during cleaning as delicate shielding in the wires can be damaged
7. Clean **PCA** Cable in two steps:

- Hold cable at **plastic clamp** (Found at centre of sensor cable where it divides into three)
- Wipe **gently from plastic clamp** towards the **sensor clips**



- Hold cable at **plastic clamp**
- Wipe **gently** from plastic clamp towards the "**Preamp'**



8. Clean in between each sensor clip with an Alco-wipe at the end of each shift. This will prevent the build up of any residual hydrogel adhesive which may cause corrosive damage to the clips
9. Make sure you remove any excess cleaning solution with a clean damp cloth and cables are left dry before next use or storage
10. Store cables safely to prevent any damage.

These Guidelines were developed in conjunction with the User Manual and Clinical Experience

Reviewed: September 2013

Appendix 8: Screener competency and sample training program

Guidelines for Assessing Practical Competencies

Specific competencies that must be demonstrated at the completion of training are detailed in the following table.

Theoretical knowledge & understanding of evidence for universal newborn hearing screening	Demonstrates: ▪ a clear understanding of basic anatomy & physiology of the ear ▪ a basic understanding of the different types of hearing loss ▪ a clear understanding of the impact of a HL on speech & language development ▪ a good understanding of the statewide and local policy in relation to screening protocols and procedures ▪ a clear understanding of the circumstances in which a child is listed for follow-up or referred and identify the procedures involved Can explain: ▪ the benefits of early identification of a hearing loss and resulting early intervention and/or management ▪ the normal developmental milestones for hearing and the importance of monitoring those with all babies
Communication with parent/s and colleagues:/offering a hearing screen/seeking informed consent	Provide a competent and complete explanation of the screening rationale and process using when offering a hearing screen to parent/s, including: o Benefits of early identification and intervention o Description of how the screen is performed o Likely duration of the screening process o Possible results and their meanings o Any follow up actions that might be required Seek informed consent from parents, providing an overview of the key contents of the HH Consent form prior to signature Demonstrates: ▪ appropriate language when communicating with parent/s: ▪ use translated HH resources &/or interpreter if necessary ▪ sensitivity to possible concerns of parent/s & provide an opportunity for them to seek clarification in order to minimise parental anxiety ▪ collaborative working practices in liaising and problem-solving with other members of the maternity team in relation to the hearing screen including data collection, timing of screen, etc Provide parent/s with any other information/explanations as necessary before, during or after the hearing screen Remind parents at completion of screen what their baby's results mean Ensure parent/s have follow-up appointments at outpatients or with diagnostic services (audiology) if required.
Screening methodology/Technical aspects of conducting a screen	Demonstrates: ▪ a clear understanding of the data which must be collected and recorded, its significance and the procedures for collecting and recording it. ▪ appropriate infection control measures when handling babies and using equipment ▪ appropriate care in the use, cleaning, maintenance and storage of equipment ▪ an understanding of appropriate actions should data be entered incorrectly/consumables applied incorrectly Perform a complete screen, without supervision/feedback, demonstrating: o Appropriate baby selection o Ensuring an appropriate environment o Accurate input of data to Algo o Appropriate skin preparation o Correct sensor connection and placement o Correct ear coupler placement o Settling the baby if disturbed during baby preparation Monitor screen's progress and troubleshoot appropriately Correctly record data in the patient record, PHR Book, S&R form Perform an equipment check

HEALTHY HEARING
NEWBORN HEARING SCREENING PROGRAM

_____ Hospital

QUEENSLAND GOVERNMENT

Skills Assessment for Screening with the ALGO 3/3i Newborn Hearing Screener

NAME: _____ **ID:** _____ **Assessor Name:** _____ **ID:** _____

Tick Applicable Box: ☐ Assessment after 2 screens ☐ Assessment after 5 screens ☐ Annual assessment

Procedure	Newborn Hearing Screen Skills to be evaluated C = Competent D = Needs Development S = Requires Supervision	Rating Scale		
		C	D	S
Screen offer	Clear and accurate information given to parents / carer ▪ Brochure in appropriate language provided &/or interpreter used ▪ Reason / aim of screening program explained ▪ Procedure described ▪ Possible screening outcomes explained			
	Consent obtained using form &/or interpreter in appropriate language			
	Opportunities provided for parents / carer to ask questions			
Baby selection	Baby selected was eligible to screen and in an appropriate state			
Data collection	Healthy Hearing Screening & Referral form completed correctly ▪ Patient demographics			
	▪ Hearing loss "high risk indicators" identified → Information obtained from medical record → Clarification with parent as required			
Procedure	Correct patient data/ information entered into Algo3 / 3i			
	Confirmed that baby was in a quiet, settled state before proceeding			
	Skin evaluated and prepared correctly			
	Sensors placed correctly			
	Ear couplers applied correctly			
	Progress of screen observed and monitored ▪ Ensured minimal ambient noise, impedance and myogenic levels ▪ Progress bars monitored ▪ Troubleshooting and intervention undertaken as required			
Post screen	Screen outcome / result explained to parents			
	Ongoing language milestone monitoring and Otitis Media risk discussed			
	Parents / carer encouraged to ask questions and further information provided as required			
	Appropriate follow-up process /action undertaken as required ▪ AABR2 arrangements ▪ Referral for diagnostic Audiology appointment within 2 to 6 week time frame ▪ Referral to Family Support Service when ABR appointment required ▪ Referral for Surveillance Audiology scenarios o Early Target Surveillance by 6wks o Routine Surveillance prior to 1st birthday			
	Written record / documentation process completed			
	Communicated as appropriate with other care providers eg nursing/audiology/FSF/medical			
	Disposed of used equipment and completed infection control measures correctly			
	Demonstrated appropriate equipment care & storage of cables			
Housekeeping	Performed Impedance, Artifact & Acoustic checks correctly			
	Demonstrated knowledge of processes for faults, monthly checks & annual ATA calibration			
	Downloaded patient screening data via USB or Infrared mode (if applicable)			

Competency: ☐ **Achieved** ☐ **Interim** (reassessment required) ☐ **Not Achieved**

Comments/Recommendation: .....

.....

Screener Signature: ..... / / **Assessor Signature**: ..... / /

Training Format & Competency Assessment

Guidelines for conducting training activities and assessing competencies are listed in the following table:

Theory - Clinical information and Screening Equipment Function and Operation	A variety of processes can be used: o Lecture o Demonstration and practice on model o e-Learning HELM Question and answer session/s
Practical Screening - Initial	Participants perform screens in pairs (or as determined by trainer) and are observed by trainer o One trainee performs screen and one records data o Feedback should be provided immediately following screen (i.e. not with parent/s present unless necessary for successful completion of screen) At least 2 screenings per trainee should be undertaken under these conditions
Practical Screening - Independent	Screener performs screens alone – with direct or indirect supervision (to be determined by trainer). 5 screenings to be successfully performed under these conditions Competencies formally assessed by local/area Healthy Hearing Coordinator via: o Observation of at least 2 complete screens o Screener can complete HELM assessment online to generate a competency certificate which can be signed off by team leader Feedback/Review process with trainer/ co-ordinator.

Annual mandatory competencies, will consist of one practical screening assessment and the completion of the online e-Learning module HELM http://www.elearn.com.au/qh_hearing/

Sample Training Program Agenda

Queensland Government

HEALTHY HEARING PROGRAM
Universal Newborn Hearing Screening

Healthy Hearing Nurse Screener Training Program

Day 1 - (insert date)

Venue: (insert)

Hospital: (insert)

0800-0815	• Introductions and Housekeeping • Program Outline for the Healthy Hearing Training Program	
0815-1000	**Introduction & Protocol** • Overview of the Healthy Hearing Program • AABR screening protocol **Anatomy of the ear** • How we hear • Types of hearing loss **Documentation** • Informed consent • Screening and Referral Form • Standard Letters • Personal Health Record Book	
1000-1015	**Morning Tea**	
1015 – 1230	**Target Surveillance & Risk Factors** • Overview • Case Quiz **Algo 3 & 3i** • Screening Characteristics • Overview of equipment • Technical aspects **Screening** • Before the screen • Screening • After the screen • Troubleshooting	
1230 – 1300	**Lunch**	
1300-1545	**Screener Scripts** • Why have scripts? • Examples **Online Assessment** **Practical screening demonstration** • Application of theory	
1545 – 1600	**Afternoon Tea**	
1600-1630	**Discussion & Evaluation**	

Day 2 – (inset date)

PRACTICAL SCREENING

Time: 0800-1630

Venue : (insert details)

0830-1000	• Question Time • Practical preparation for screening • Obtaining consent • Completing Screening & Referral Forms	
1000-1630	• Practical hearing screening of babies • Skills assessment / feedback	